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11
Histories of

Two Hundred and Ninety-six

Surgical Photographs.

Prepared at the

Army Medical Museum

By Surgeon A. Otis,

Asst-Surgeon U. S. A.

Sup. Genl. Off.
11034

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PHOTOGRAPH NO. 1. *A Portion of Cranium, with Conoidal Ball imbedded in the Ethmoid and Frontal Bones.*

Corporal G. W. S., 12th Massachusetts Volunteers, aged 29 years, was wounded at the battle of Fredericksburg, December 13th, 1862, and admitted into the Camden Street, U. S. A. General Hospital, Baltimore, Maryland, December 19th, 1862. The globe of the right eye was destroyed. There was a slight slit in the lower lid. The patient did not complain of much pain. The functions of the other eye were not disturbed, although the organ was observed to be unnaturally prominent. Slight headache was the only brain symptom present. Neither the patient nor medical attendants suspected that the ball had entered the orbit. The wound healed kindly, and after three weeks the man went about the city habitually, with a pass. He continued well, with the exception of an occasional pain over the left eye, until February 6th, 1863, when he had a chill, followed by febrile reaction. There were, however, no marked cerebral symptoms, until February 10th, 1863, when delirium came on. On the following day the patient became comatose, and at midnight of February 11th, 1863, he died. The autopsy revealed a conoidal bullet, entering at the inner angle of the right orbit, through the orbital plates of the frontal and ethmoid bones, and resting between the sphenoid, ethmoid, and frontal bones, pressing back the left orbital plate of the latter. The ball was in contact with the dura mater, which had ulcerated at this point. At the base of the anterior lobe of the left cerebral hemisphere was an abscess containing two drachms of pus. A formation of callus encrusted the ball and diminished the opening originally made by it. There was no necrosis. The specimen is numbered 1108 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 2. *Perforation of the Right Femur, just above the Condyles, by a Musket Ball.*

Private Samuel S. Kopp, Co. E, 10th Pennsylvania Reserves, was shot through the lower third of the right thigh, by a musket ball, at the second battle of Bull Run, August 28th, 1862. The ball entered just above the patella, and made its exit in the popliteal space. The patient was taken, after a few days, to Alexandria, and admitted to General Hospital. On September 20th, 1862, his thigh was amputated at the middle by Surgeon Charles Page, U. S. A. He survived the operation two days. The specimen presents a very good example of a gunshot perforation through the cancellated portion of a long bone. Two fissures, which extend through the diaphysis, are seen running to the middle third of the shaft. A narrower fissure separates the condyles.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 3, 196 AND 197. *Case of successful primary amputation at the Hip Joint.*

Private James E. Kelly, company B, 56th Pennsylvania Volunteers, aged twenty-eight years, was wounded at about 9 o'clock of the morning of April 29, 1863, in a skirmish of the First Division, First Corps, on the Rappahannock, nearly opposite the "Pratte House," below Fredericksburg. A conoidal musket ball, fired from a distance of about three hundred yards, shattered his left femur. A consultation of the senior surgeons of brigades decided that exarticulation of the femur was expedient, and the operation was performed, at four in the afternoon, at the "Fitzhugh House," by Surgeon Edward Shippen, U. S. Vols., Surgeon-in-chief of the First Division. The single flap method was adopted, and the amputation was accomplished with slight loss of blood. The patient was at first placed in a hospital tent, and was transferred, May 22, to the Corps Hospital, progressing favorably. By May 28, all the ligatures had been removed. On June 15, 1863, the patient was captured by the enemy, and was removed to the Libby Prison, in Richmond. Up to this date there had been no bad symptoms. On July 14, Kelly was exchanged, and was sent to the Annapolis U. S. A. General Hospital. On his admission he was much exhausted by profuse diarrhœa. The internal portion of the wound had united, but the external portion was gangrenous. Applications of bromine were made to the sloughing surface without amelioration. A chlorinated soda lotion was substituted, and in the latter part of July there was a healthy granulating surface. On December 23, 1863, the wound had entirely healed, and Kelly visited Washington, and obtained an honorable discharge from service, and a pension. At this date, the picture from which the photograph was taken was drawn by Hospital Steward Stauch, U. S. A., one of the artists of the Army Medical Museum. Kelly then went to his home, near Black Lick P. O., Indiana County, Pennsylvania. A letter, dated January 12, 1865, was received from him at this Office, and represented him as in excellent health and spirits at that time. In the spring of 1868, Kelly went to New York and had an artificial limb adapted by Dr. E. D. Hudson. At that time the photograph was taken. He could walk quite well after the adaptation of the artificial limb. The specimen is preserved at the Army Medical Museum and is No. 1148 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 4. *Left Femur fractured by a conoidal musket ball.*

Private John Draker, company I, 57th Pennsylvania Volunteers, aged twenty-five years, was wounded on picket duty on the Rapidan, November 27, 1863. A conoidal musket ball passed through the muscles of the right thigh, and, entering the middle of the left thigh at its inner side, flattened itself against the femur, and shattered the bone. The patient was transferred to Alexandria by rail, and admitted, on December 4, 1863, to the Prince Street Hospital, under the care of Acting Assistant Surgeon J. Cass. The left thigh was very much swollen. On December 7, the patient became delirious. The soft parts of the left thigh were in a gangrenous condition. He died on December 13, 1863. He had bloody expectoration and other symptoms of pleuro-pneumonia at the last. At the autopsy, the periosteum was found separated from a large part of the shaft of the femur; there were large abscesses in the thigh, and the soft tissues were greatly disorganized nearly to the hip; there was a large amount of sero-purulent offensive fluid in the right pleural cavity. The specimen of the fractured femur is No. 1907 of the Surgical Section of the Army Medical Museum, and is a good example of a comminution of the shaft of a long bone by a ball moving at a low rate of velocity. The ball must have struck with its long diameter parallel to that of the shaft of the femur.

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PHOTOGRAPH No. 5. *Left Femur of a Confederate Soldier, exhibiting Attempts at Repair of a Gunshot Fracture of the Upper Third.*

Private E. W. A——, Co. G, 5th Florida Regiment, 18 years of age, was wounded July 3d, 1863, at the battle of Gettysburg, by a conoidal musket ball, which shattered the upper third of the left femur. He was first treated in a field hospital, but on August 5th, 1863, was admitted to Camp Letterman General Hospital. At that date, the patient was reduced by profuse suppuration; he was greatly emaciated, and large bed-sores had formed on his back. On August 12th, a troublesome diarrhœa set in. He lingered till September 15th, 1863, when he died from exhaustion. The large foliaceous masses of callus uniting the fragments are extremely delicate and brittle. The Specimen is numbered 1938 in the Surgical Section of the Museum.

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PHOTOGRAPH No. 6. *Head and six inches of Shaft of Right Humerus successfully excised for Gunshot Fracture.*

Private John F. Reardon, Co. C, 6th New York Cavalry, aged twenty-two years, was wounded at Culpeper, Virginia, October 11th, 1863, and entered Armory Square Hospital, at Washington, on the following day. It was found that his right humerus was shattered by a fragment of shell, which was removed from its lodgement under the deltoid muscle. It was four inches long, one inch broad and weighed nine ounces. The head and six inches of the shaft of the humerus were excised through a straight incision on the outside of the limb. During the after treatment the elbow was well supported. The patient recovered without a bad symptom, and with a remarkably useful limb. In March, 1866, Reardon was reenlisted in the U. S. Army General Service, and was assigned to duty as an orderly at the Army Medical Museum. From that date until the present, (September, 1868), he has served continuously, suffering very little inconvenience from the mutilation he has undergone. Without difficulty he can place his right hand on the top of his head; he can lift a weight of 200 pounds or more with the injured limb without pain. The movements of the forearm and hand are not in the least impaired, and there is great freedom of all the movements of the arm except abduction. The muscular development of the arm equals that of its fellow. No apparatus is requisite, and altogether the result is most satisfactory and successful. The case effectually disproves the dictum of the older military surgeons on the inutility of excisions of the humerus in cases in which it is necessary to saw the shaft below the insertion of the deltoid.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 7. *Sequestrum of the Left Femur, Eight Weeks after the Amputation of the Left Thigh.*

Corporal H. H. Ellis, Co. I, 16th New York Volunteers, aged twenty-three years, was wounded at Fredericksburg, May 3d, 1863, and admitted into Douglas Hospital at Washington, May 8th, 1863. A conoidal ball had comminuted the left patella, (Specimen 1852, A. M. M.,) and the knee-joint was involved. On the 13th of May, the thigh was amputated at the lower third, by the circular method, by Acting Assistant Surgeon J. E. Smith, U. S. A. This patient's health was much impaired by chronic diarrhœa, and after the operation his condition was very unsatisfactory. Secondary hæmorrhage occurred on May 20th, and recurred on the 21st, when the femoral artery was tied in Scarpa's triangle. For many weeks this man clung to life by the slenderest thread. The thigh stump was greatly swollen and very tender on pressure. The line of incision, however, was not unhealthy in appearance, and the discharge was moderate. From the inner angle of the stump the necrosed extremity of the femur protruded. August 9th, 1863, the sequestrum was found to be loose, and Dr. Smith was directed to remove it. After its extraction there was considerable hæmorrhage, nevertheless, convalescence now proceeded rapidly. A formation of new bone replacing the original diaphysis could be readily felt. The stump was not shorter than at first. It soon closed entirely, was firm, and in every respect satisfactory. The man was discharged from the hospital, and from the service of the United States, October 26th, 1863. In December, 1864, he reported himself in good health. The Specimen and a history from which the foregoing facts are derived, was contributed by Assistant Surgeon William Thomson, U. S. A. It is numbered 1853 in the Surgical Section of the Museum.

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PHOTOGRAPH NO. 8. *Section of a posterior Portion of a Cranium. Both Parietals are fractured by a Sabre Cut near the Lambdoidal Suture.*

Private James T. Bedell, Co. F. 7th Michigan Cavalry, aged forty-two years, was captured on July 3d, 1863, at Gettysburg, his horse being shot from under him. He was hurried to the rear with other prisoners; in the subsequent retreat he was unable to keep up with the column, and all efforts to goad him on being unavailing, a confederate lieutenant, in command of the provost guard, cut him down, and left him for dead by the roadside. He was brought in by one of our scouting parties, and admitted to the Cavalry Corps Hospital. On the 25th of July, he was sufficiently rational to give the above account to Surgeon Rulison, 9th New York Cavalry. He was in a very depressed state at this time. His pulse was weak and beat from 40 to 45 per minute. He was indisposed to mental exertion; but when roused and interested, was quite rational. He lingered until August 15th, 1863, the tendency to stupor becoming greater and greater towards the close. The autopsy revealed a sabre cut six inches long, which had raised an osseous flap, adherent at its base, from the left parietal, and a fracture of the right parietal, with great splintering of the vitreous plate. The sabre had penetrated the dura mater on the left side, and on the right side the meninges were injured by the depressed inner table. The posterior lobes of both hemispheres of the brain were extensively disorganized. The specimen with the above history was contributed by Surgeon W. H. Rulison, 9th New York Cavalry, since killed in battle. The Specimen is numbered 1672 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 9. *Cranium extensively fractured by a Shell.*

A confederate soldier, wounded in the demonstration on Washington, July 17th, 1864, was admitted into Lincoln U. S. General Hospital, on that day, and died two hours after admission. Over the anterior superior angle of the left parietal bone, there was an extended scalp wound. On reflecting the scalp, multiple depressed fractures of the vault of the cranium came into view. The point of greatest depression is an inch to the left of the median line, near the coronal suture. The depressed fragments measure from before backwards two inches, and from right to left three inches, and involve both parietals and the os frontis. A fissure runs through the squamous portion of the left temporal, and all the sutures of this bone are separated. The autopsy was made and the specimen forwarded by Assistant Surgeon Henry M. Dean, U. S. A. It is numbered 2871 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 10. *Gunshot contusion of the outer Table of the Frontal bone, with Fracture of the Vitreous Plate.*

Private Abram L—, Co. C, 78th New York Volunteers, was wounded by a conoidal musket ball at the battle of the Wilderness, May 6, 1864, and entered Armory Square Hospital, at Washington, on May 12th. He was in a comatose condition when admitted, and died on May 24th eighteen days after receiving the injury. No farther particulars of the case can be obtained. The specimen presents a fracture of the inner table of the frontal bone, near the coronal suture, to the left of the median line. There is no solution of the continuity in the outer table; but it is softened where the pericranium was destroyed by the ball. A fragment an inch and a half in length and half an inch broad, is completely detached from the vitreous table. The specimen is an excellent illustration of that variety of fracture of the skull, in which the outer table remains intact, and the thinner and more friable vitreous table is splintered; an accident resulting always, it is believed, either from the shock of a projectile striking the cranium very obliquely, or else from a comparatively slight blow from a body with a large plain surface. Preparations illustrating this variety of fracture of the skull are very rare. M. Legouest presented one to the Dupuytren Museum, and Mr. Prescott Hewett, in his paper on injuries of the head, in Holmes's *System of Surgery*, refers to the existence of such specimens, and Williamson (*Military Surgery*, pp. 29, 30) gives the history of specimen 2893, of the Netley Museum, which is of this character. The Army Medical Museum possesses eleven examples of this form of injury. This specimen was presented by Surgeon D. W. Bliss, U. S. Vols.

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SPECIMEN No. 1206 *Gunshot Fracture of the head of the right
Humerus. A Conoidal Ball imbedded. Secondary excision
Death*

Private George Hetz, Company A, 75th Ohio Vol's, was wounded May 2d, 1863, at Chancellorsville, and on May 25th, 1863, was admitted into the 1st Division, U. S. A. General Hospital, at Alexandria, Va. On May 27th, Surgeon Charles Page, U. S. A., explored the wound, and finding a fracture of the head of the right humerus, limited to the epiphysis, he performed excision. Much inflammatory action ensued, which was treated by irrigation. On June 4th the patient had a chill; an abscess pointed near the insertion of the deltoid, and was opened. On June 7th, 1863, the case terminated fatally.

The specimen exhibits a conoidal ball imbedded in the upper part of the anatomical neck and articulating surface of the head, splitting the head into two fragments. It may be regarded as a typical case for the operation of excision of the head of the humerus.

Photographed at the Army Medical Museum.

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SPECIMEN No 59. *Lower third of right Femur, the outer Condyle split off by a round Musket Ball. Amputation. Death.*

Private Richard Williams, 28th Pennsylvania Volunteers, was wounded September 16th, 1862, at the battle of South Mountain, by a round musket ball, which entered near the outer hamstring, and lodged between the condyles of the right femur. He was conveyed to Washington, D. C., and admitted into Mount Pleasant U. S. A. General Hospital, September 22d, 1862. On September 30th, his right thigh was amputated, by flap incisions. At this date the limb was excessively swollen: the discharge of pus was profuse; abscesses had burrowed in the soft parts, and irritative fever existed to an alarming degree. The case terminated fatally on October 2d, 1862.

The ball, which remained imbedded in the cancellated structure of the femur, between the condyles, had caused a very oblique fracture into the knee-joint, separating the external condyle from the shaft, and breaking off a fragment from the anterior surface of the inner condyle.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 13. *Upper Fourth of the Left Femur fractured by a Musket Ball, which entered the Pelvis.*

Private ——— was wounded, August 28, 1862, at Gainesville, Virginia, in the engagement between General King's division of the First Army Corps and the Confederate forces under General Jackson. The diagnosis was that the trochanters and neck of the left femur were badly splintered, and that the ball had lodged near the acetabulum. The symptoms were grave, and the prognosis unfavorable; but it was decided to remove the fractured extremity of the bone. The operation was performed by Brigade Surgeon Peter Pineo, U. S. Vols. The head and the upper fourth of the femur were excised, the shaft of the bone being sawn about two inches below the lesser trochanter. It was found that the ball had entered the pelvis, and that there was internal hæmorrhage. The patient fell into the hands of the enemy. In all probability he survived but a short time. The trochanter major is separated into five fragments, and a long oblique fissure produces a complete solution of continuity of the shaft of the femur. (Compare the Report on Excisions of the Head of the Femur for Gunshot Injury, promulgated by *Circular No. 2, S. G. O.*, 1869, p 21.)

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 14. *Upper Portion of Right Femur, the Neck and Trochanter Major shattered by a Conoidal Musket Ball.*

Private P. Johnson, Co. C, 2d Delaware Volunteers, was wounded at the battle of Fredericksburg, December 14th, 1862, by a conoidal musket ball, which entered the upper part of the right thigh in front and passed out at the nates, having, in its course, divided the femoral artery and perforated the great trochanter. Except that the primary hæmorrhage was slight, little is known of the early history of the case. On December 25th, the wounded man was conveyed to Washington, and placed in the Douglas Hospital. On admission, nearly the entire injured limb was gangrenous, and it was believed that the fracture extended into the hip-joint. Brigade Surgeon P. Pineo, U. S. Vols., in charge of the hospital, decided to amputate at the hip-joint, "with no hope of a favorable result, but to mitigate the patient's distress in the last moments of life." On December 27th, anæsthesia being induced by ether, the operation was performed. The patient survived it only a few hours. The pathological specimen was sent to the Army Medical Museum and is numbered 710 in the Surgical Section. It exhibits a perforation of the great trochanter, with radiating fissures, which separate the trochanter and neck into four fragments, and run obliquely down the shaft. Traces of the results of periostitis are visible along the shaft.

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PHOTOGRAPH No. 15. *Skull-Cap, exhibiting a Bayonet Perforation of the Left Parietal.*

Private Thomas Graham. Co. B. 90th Ohio Volunteers, was admitted into Hospital No. 1, Nashville, Tennessee, on November 27th, 1863, with a bayonet wound behind the left parietal protuberance, inflicted by a sentinel, whom the patient, being intoxicated, had refused to obey. For several days after admission, he was somnolent and obstinately constipated. Under the use of powerful purgatives this condition was removed, and the wound nearly cicatrized. But on December 8th, the patient complained of headache, and a probe passed through the small orifice of the wound, revealed the presence of denuded and detached bone. A semi-crucial incision was made and the fragments of dead bone were removed. On December 11th, there was more headache, and a tendency to stupor; the pulse was at 48; there was intolerance of light and sound; the scalp was tumid; the wound gaping and filled by fungous granulations. The incisions in the scalp were extended; an ice bladder was applied to the head, and purgatives and purgative enemata were employed. A day or two subsequently cerebral hernia took place; then extended suppuration in the left hemisphere; then delirium and coma, and death on December 23d, 1863. The description and specimen were contributed by Assistant Surgeon C. J. Kipp, U. S. Vols. The Specimen is numbered 2179 in the Surgical Section of the Museum.

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SPECIMEN No. 1481. *Amputated Extremity of the Right Femur and Upper Extremity of Tibia, with a Round Musket Ball impacted near the Spinous Process of the Articular Surface of the Tibia.*

Private ———, a soldier of the 3rd Division of the 1st Army Corps, was wounded at Gettysburg, Penn., on July 1st, 1863, by a musket ball which entered through the right popliteal space, fissured the internal condyle of the femur, and lodged in the head of the tibia.

He underwent amputation of the lower third of the thigh on July 15th, and died July 17th, 1863. The specimen was contributed by Surgeon P. A. Quinan, in charge of the Division Hospital.

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PHOTOGRAPH No. 17. *Successful Excision of the Head of the Left Humerus and Coracoid Process of the Scapula.*

Private R. Jones, company D, 67th New York Volunteers, aged twenty-two years, was wounded May 12, 1864, at the battle of Spottsylvania, by a conoidal musket ball, which comminuted the surgical neck of the left humerus and the coracoid process of the scapula, and lodged just below the clavicle. He was removed to Fredericksburg, and thence to Washington, and was admitted to Carver U. S. General Hospital, May 16. At that date the shoulder was highly inflamed, and the arm greatly swollen. The patient was placed under the influence of ether, on May 17, and the head and two inches of the shaft of the humerus, and the fragments of the coracoid process, were removed through an U shaped incision, by Surgeon O. A. Judson, U. S. Volunteers. The case progressed rapidly towards recovery, and without any unfavorable complications. Attention was paid to supporting the elbow, in order to approximate the upper extremity of the humerus to the glenoid cavity, and the wound was kept open for a time by dressings of lint. The coraco-brachialis and the short head of the biceps doubtless formed new attachments at the base of the coracoid process. The photograph of the patient was taken December 1, 1864, at which date the cicatrix was perfectly sound, and the patient's control over the movements of the limb eminently satisfactory. Jones was discharged from service December 12, 1864. The specimen is 2479 of the Surgical Section of the Army Medical Museum.

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PHOTOGRAPH No. 18. *Penetrating Gunshot Wound of the Thorax and Abdomen. A Round Musket Ball having entered the Left Pleural Cavity passed through the Diaphragm, and thence into some Part of the Intestinal Canal. Recovery.*

Captain Robert Stolpe, Co. A, 29th New York Volunteers, was wounded at Chancellorsville, on the 2d of May, 1863. A round musket ball, fired from a distance of about one hundred and fifty yards, entered the eighth intercostal space of the left side, at a point nine and a half inches to the left of the extremity of the ensiform cartilage, and fractured the ninth rib. Without wounding the lung, apparently, the ball passed through the diaphragm, and entered some portion of the alimentary canal. Captain S. walked a mile and a half to the rear, and entered a field hospital. On examining the wound, the surgeons found a protrusion of the lung of the size of a small orange, which they unavailingly attempted to reduce. The wound was enlarged, and still it was impracticable to replace the protruded lung. On May 3d, the field hospital where Captain Stolpe lay, was exposed to the enemy's fire. He walked half a mile farther to the rear, and was there placed in an ambulance and taken across the Rappahannock, at United States Ford, to one of the base hospitals. Here fruitless efforts were again made to reduce the hernial tumor, after which a ligature was thrown around its base and tightened. A day or two subsequently the patient passed into the hands of Surgeon Tomaine, who removed the ligature from the base of the tumor. A small portion of the gangrenous lung separated and left a clean granulating surface beneath. On May 7th, the ball was voided at stool. On May 8th, the patient was visited by Surgeon John H. Brinton, U. S. Vols., who found him walking about the ward, smoking a cigar. There was an entire absence of general constitutional symptoms; no cough, no dyspnoea, no abdominal pain; the bowels were regular and appetite good. The protruding portion of lung was carnified, and there was dullness on percussion and absence of the respiratory murmur in a zone an inch and a half in width around the circumference of the base of the tumor. Surgeon Tomaine stated that the hernia had been gradually diminishing in volume. It was at this date half the size of an egg, and covered with florid granulations. On May 10th, a drawing of the parts (No. IX) was executed by Mr. Stanch, artist of the Army Medical Museum. On June 2d, Captain Stolpe was transferred to Washington, and was visited by Surgeon Brinton and Dr. Henry G. Clark, of Boston. There was an elastic partially reducible tumor, over which was an oval granulating surface, an inch and a half by three-quarters of an inch. The vesicular murmur was perfect throughout the lung except in the immediate vicinity of the tumor. Compression of the tumor was advised. After a visit to Easton, Pa., and a furlough of sixty days, Captain Stolpe returned to Washington. On November 13th, 1863, he was again examined by Surgeons Brinton and Goldsmith, and Assistant Surgeon Woodward, U. S. A. The wound had entirely healed; the respiratory sounds were normal; there was still a slight hernia of the lung. The general health of the patient was excellent. At this date the second drawing (No. X) was executed by direction of Surgeon J. H. Brinton, who also recorded the foregoing facts in relation to the case.

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PHOTOGRAPH No. 19. *Lower Half of Right Femur, with Ball impacted above the Inner Condyle.*

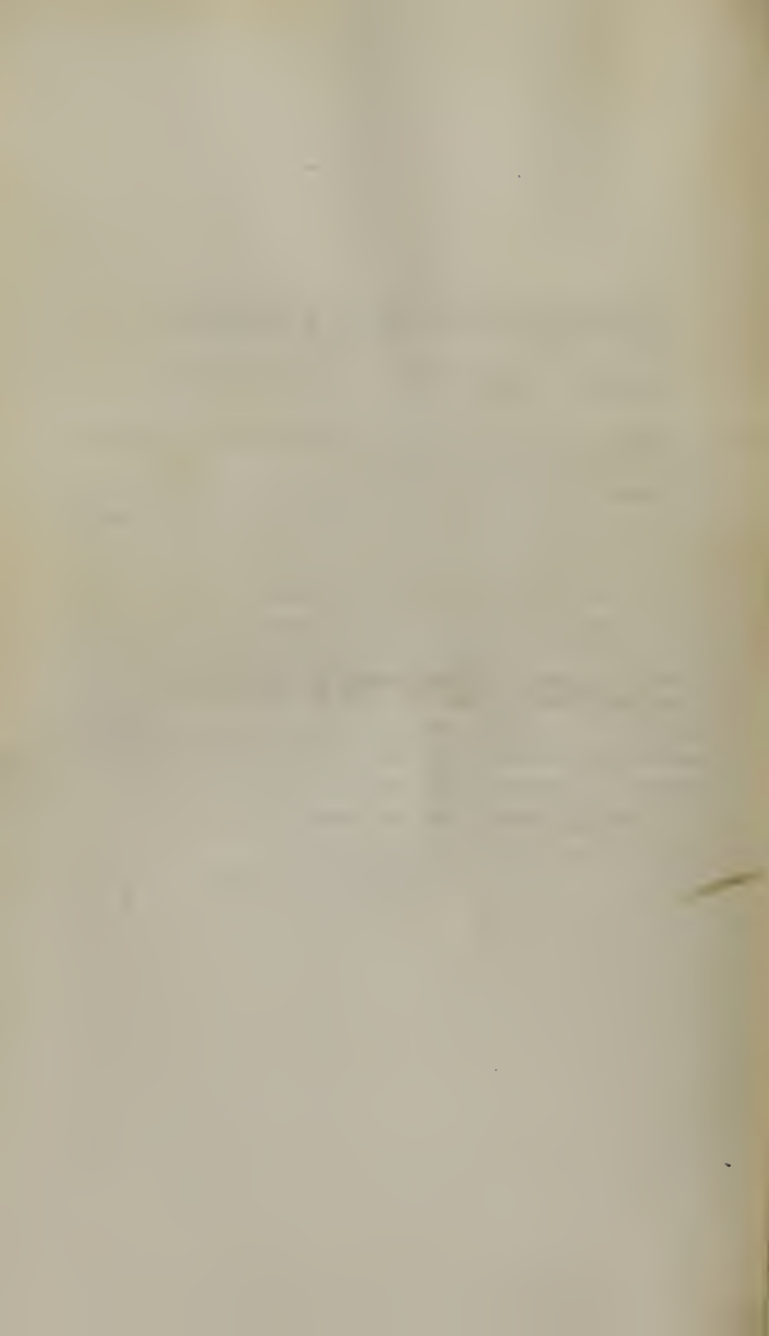
Private Orson B. Norwood, Co. K, 3d Michigan Cavalry, was wounded, July 15, 1863, in a skirmish near Jackson, Tennessee. He was acting as a vidette at the time, and was stationed on a bridge. The ball, fired from below, produced a long fissure in the lower third of the inner aspect of the femur, and was itself split by the compact lamina of the bone. This patient was removed to the general hospital at Lagrange, Tennessee, July 22, 1863. The thigh was then erysipelatous, and amputation was deemed inadvisable. September 27, 1863, the patient was removed to the Washington Hospital at Memphis, where he died of pyæmia, October 2, 1863. The fragment on the inner surface of the femur, though but slightly separated from the diaphysis, was found to be necrosed. The specimen was forwarded by Assistant Surgeon Joseph P. Wright, U. S. Vols.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.



* Autopsy. Limited peritonitis. A drachm of pus near lower end of kidney.

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PHOTOGRAPH No. 20. *Second, Third, and Fourth Lumbar Vertebrae, with a Conoidal Ball imbedded in the Left Side of the Body of the Third Lumbar Vertebra.*

Private Thomas Durning, ~~C. E.~~ 1st Michigan Sharpshooters, aged nineteen years, was wounded, June 24, 1864, and admitted into Stanton U. S. General Hospital, Washington July 1, 1864. An elongated musket ball, entering the loins just above the crest of the left ilium, buried itself in the body of the third lumbar vertebra, carrying with it a portion of the man's blouse. On July 4th, symptoms of tetanus appeared, which became rapidly of the gravest nature, and the case terminated fatally on the next day, July 5, 1864.* The specimen was contributed by Assistant Surgeon George A. Mursick, U. S. Vols.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH NO. 21. *Skull, exhibiting an extensive Fracture from Grape-shot. The Missile entered the Left Parietal Bone near the Lambdoidal Suture, and emerged through the Squamous portion of the Temporal Bone.*

The specimen was picked up by Surgeon Frederick Wolfe, 39th New York Vols, in June, 1863, under an abatis near the stone bridge over Bull Run, and is supposed to be the cranium of a confederate soldier, killed in the second battle of Manassas, August, 1862. At that action a portion of Longstreet's Corps charged upon one of the federal batteries in position near this locality.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 22. *Section of a Cranium, exhibiting five Trephine Perforations for the Evacuation of Pus, the result of a Gunshot Contusion of the Right Parietal. The Patient survived the Operation Twelve Hours.*

Private Joseph R——, Co. E, 151st New York Volunteers, received in a reconnoissance near the Rapidan, Nov. 27th, 1863, a gunshot wound of the scalp. The nature of the missile was unknown. The patient was removed to Fairfax Seminary General Hospital. There were no cerebral symptoms at the time of his admission, and it was hoped that the pericranium had escaped uninjured. He was up and apparently well on December 13th, 1863, when he was suddenly seized with convulsions, which were followed by coma. Surgeon D. P. Smith, U. S. Vols, laid bare the calvaria at the seat of injury, and finding the bone diseased, applied the trephine. Matter was found immediately beneath the bone and oozing from the diploe. It was thought expedient to make five perforations with the trephine, in order to remove the diseased bone, and give free exit to pus. Convulsions did not recur, but the comatose condition continued, and the case terminated fatally twelve hours after the operation. The autopsy revealed diffused inflammation of the arachnoid and dura mater. The Specimen is numbered 2000 in the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 23. *Skull-cap, exhibiting Gunshot Fracture near the Vertex by a Conoidal Musket Ball, which has split against the Lamina of the Left Parietal. The Patient died Twenty-three days after the infliction of the Injury.*

Private C. C. W——, Co. I, 6th Wisconsin Volunteers, aged twenty-one years, was wounded in the Wilderness, May 12, 1864, and was admitted to Douglas Hospital, in Washington, four days subsequently. It was ascertained that the cranium was fractured, but the symptoms were not urgent, being limited to slight paralysis of the right upper extremity, and operative interference was deferred. On May 31, a conoidal musket ball, and several fragments of the left parietal were removed by Assistant Surgeon Wm F. Norris, U. S. Army. One large fragment of the vitreous plate was pressing on the dura mater; this was elevated and removed. The next day symptoms of compression of the brain were manifested. An exploration of the wound was made, and a quantity of pus evacuated. On June 4, 1864, twenty-three days after the injury, the case terminated fatally. At the autopsy, the arachnoid was found little altered. There was an abscess in the posterior lobe of left hemisphere near the longitudinal sinus of the size of a walnut. Its walls were of a greenish yellow color. It communicated with the lateral ventricle. The right ventricle was filled with sero-sanguinolent fluid. There was a deposition of lymph at the base of the brain, extending from the medulla oblongata to the bifurcation of the optic nerves. The specimen and history were contributed by Assistant Surgeon William Thompson, U. S. Army.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 24. *Three Dorsal Vertebrae, with a Musket Ball lodged in the Vertebral Canal.*

Private Frederick Lord, Co. H, 8th New York Volunteers, aged 26 years, was wounded at Cold Harbor, June 3, 1864, and admitted into Carver Hospital, at Washington, D. C., June 11th. He stated that, immediately upon the reception of his injury, he lost all sensation and power of motion below the wound. On admission, he was in a very feeble state; his pulse was slow, his respiration labored, his skin cool, clammy and cyanosed, his excretions involuntary. In this wretched condition he lingered till the 27th of June, when symptoms of extreme gastric irritability supervened, and every form of nourishment was promptly rejected by the stomach. He died July 2, 1864. At the autopsy it was found that the transverse articular processes of the eighth and ninth dorsal vertebrae were shattered by the ball. The spinal cord appeared to have been completely severed at the seat of injury. It was disorganized above and below. In several places the omentum was agglutinated to the intestines by recent effusions of lymph.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 25. *Fourth, Fifth, and a portion of the Sixth Dorsal Vertebrae, sawn asunder to show the Point of a Knife-blade, which, passing between the Transverse Processes of the Fourth and Fifth Vertebrae, and traversing the Vertebral Canal, has entered the body of the Fifth Vertebra.*

Private George Sweeney, Co. B, 15th New York Engineer Regiment, in an altercation with a comrade, was stabbed in the back with a dirk, at Falmouth, Virginia, the 20th of April, 1863. He was admitted to Armory Square Hospital, at Washington, on April 22d, completely paraplegic. On April 27th, he began to pass his faeces and urine involuntarily, and bed-sores appeared on the portions of the lower part of the body exposed to pressure. He sank very slowly, dying from exhaustion on May 27, 1863. The specimen was contributed by Assistant Surgeon C. C. Byrne, U. S. Army.

Photographed at the Army Medical Museum.

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1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

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PHOTOGRAPH No. 26. *Portion of Left Parietal Bone, exhibiting a slight Fracture of the External Table and Extensive Splintering of the Vitreous Table.*

Private Leonard L——, Co. F, 74th New York Volunteers, was wounded at the battle of Williamsburg, May 5, 1862, and was admitted into Broad and Cherry Streets Hospital, at Philadelphia, May 13, 1862. A musket ball had struck near the left parietal eminence, and, producing a slight depression of the outer table, had lodged under the scalp, whence it had been removed by a surgeon on the field. The wound had an healthy aspect when the man was admitted, and there was no cerebral disorder. This favorable condition continued unaltered until May 20th, when a febrile movement set in, accompanied by nausea and vomiting; drowsiness and stupor followed, and the patient died comatose on May 23d, eighteen days after the injury. At the autopsy, a small clot was found beneath the depressed portion of the vitreous plate; the dura mater was uninjured; the arachnoid, near the seat of injury was opaque, and studded with deposits of lymph; the grey matter of the brain was softened. The specimen and history were contributed by Acting Assistant Surgeon E. Livesey, U. S. Army.

Photographed at the Army Medical Museum.

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SPECIMEN No 3451. *Exfoliation from the Right Temporal and Parietal Bones, resulting from Gunshot Injury.*

Private William Fisher, Co. G, 98th Penn. Vols., was wounded near Fort Stevenson, Defences of Washington, July 12th, 1864, by a glancing shot from a conoidal musket ball, and was admitted into Mount Pleasant Hospital on the following day.

A little above the right auditory meatus was a scalp wound an inch and a half long. A piece of the mastoid process was chipped off, and a fracture extended into the petrous portion of the temporal.

The patient did well with simple dressings and rest and gentle cathartics till the 20th of May, when the wound began to slough. Applications of nitric acid, creosote, etc. failed to arrest the sloughing, which presently gave rise to repeated hemorrhages from branches of the temporal artery.

The gangrene continued to spread until August 9th, when the eschars separated, leaving a space five inches in diameter on the right lateral region of the head denuded of integument, fascia and muscles.

During this long period, the patient complained of no inconvenience at the seat of fracture, though there was at times acute frontal pain.

Early in September, it was evident that the exposed portions of the temporal and parietal bones were necrosed, and on Sept. 6th, a fragment of the squamous portion of the temporal was removed by Act. Asst. Surgeon H. Craft, U. S. A. Two days subsequently other fragments became detached, and on the 10th Dr. Craft extracted a portion of the temporal that had been driven through the dura mater.

After this the wound began to cicatrize rapidly, and on Dec. 3d, 1864, the patient was reported to be entirely out of danger, and, in fact, nearly well.

The specimen, with memoranda from Act. Asst. Surgeons Porter, Kern, and Crafts, was contributed by Asst. Surgeon C. A. McCall, U.S.A.

Photographed at the Army Medical Museum.

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SPECIMEN No. 3452. *Exfoliation from the Right Parietal Bone, resulting from a Gunshot Depressed Fracture. The Patient recovered.*

Private John McKane, Co. H, 103th Pennsylvania Vols., was wounded at Petersburg, Va., June 14th, 1864 by a conoidal musket ball, which struck the right side of the skull very obliquely, and produced a slightly depressed fracture of the right parietal bone. He was admitted to Mount Pleasant General Hospital, Washington, on June 24th, with the report that the progress of the case had been so far eminently satisfactory.

After admission, he was found to be insensible, and a few hours subsequently, convulsions supervened in rapidly recurring paroxysms. Twelve ounces of blood were taken from the temporal artery without apparent benefit. A trephine was then applied at the seat of fracture. A portion of the inner table was found slightly depressed. This was elevated, and the patient soon afterward regained consciousness.

On the 28th of June, the wound in the scalp became erysipelatous, and before the inflammation subsided there was extensive loss of substance of the integuments and pericranium, denuding a large portion of the parietal bone. Necrosis ensued, and embraced the whole thickness of the bone.

In September, 1864, a portion of the parietal three inches by four, had become so much loosened that it was readily removed by Act. Asst. Surg. H. Craft. After this, cicatrization went on rapidly, and, at the date of the last report, December 2d, 1864, the wound had contracted to an ulcer less than an inch in diameter.

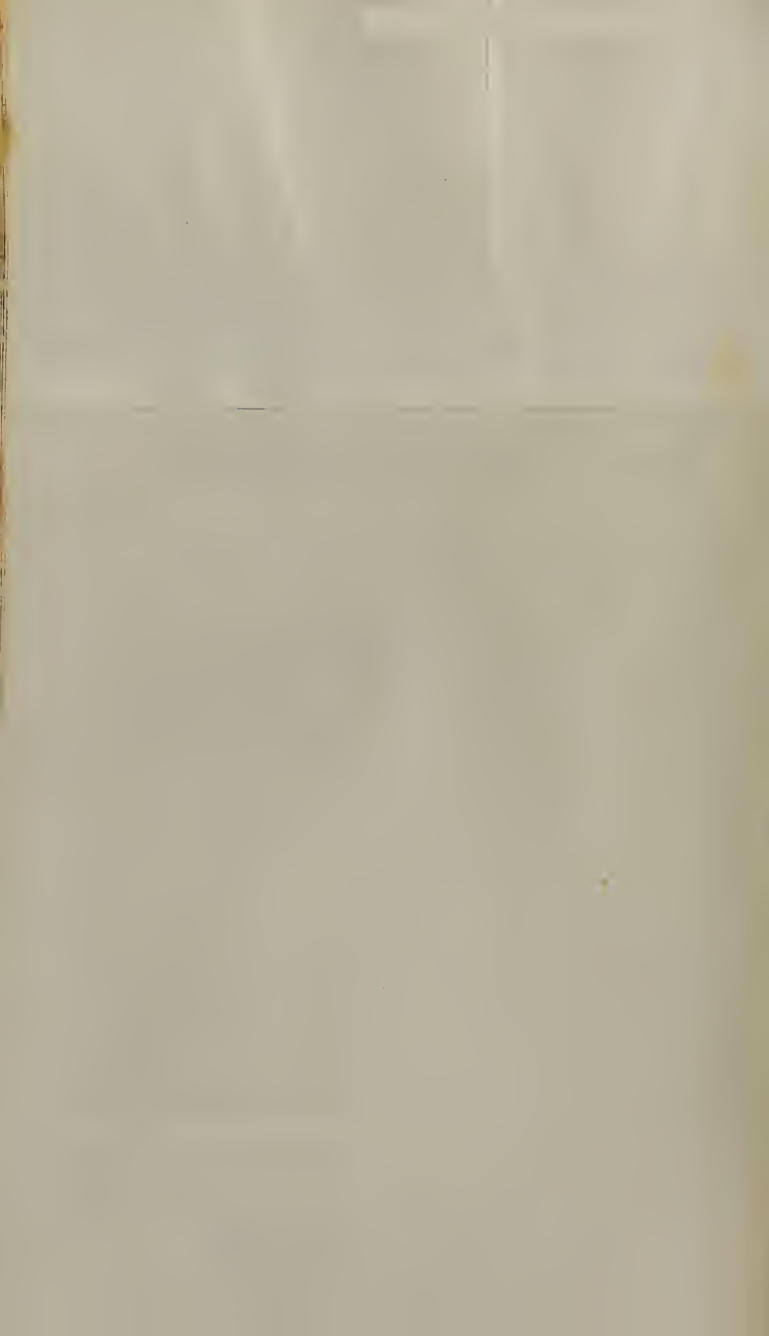
The patient's mental faculties were impaired more or less, the ward physician thought, but not to a great extent.

The specimen was contributed by Asst. Surgeon C. A. McCall, U. S. A.

Photographed at the Army Medical Museum.

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Surg. U. S. V., Curator A. M. M.



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PHOTOGRAPH NO. 28. *Greater Portion of Right Superior Maxilla, necrosed and detached as a Result of Mercurial Poisoning.*

Private Carleton Burgan, Co. B, Purnell's Legion of Maryland Volunteers, aged twenty years, was admitted to General Hospital at Frederick, Maryland, August 4th, 1862, in a prostrate condition. He had a bed-sore over the sacrum; his body was bathed in sweat and covered with sudamina; his tongue was dry, and his teeth covered with sordes. It was reported that he had been sick in camp since June 5th, and that he had recently taken, as treatment for pneumonia, two scruples of calomel, one scruple of mercury with chalk, and sixty-five grains of blue pill. On August 6th, a jagged ulcer was discovered on the right edge of the tongue. On the 10th, a slough appeared on the gum at the root of the right upper bicuspid tooth, and rapidly extended to the cheek and the roof of the mouth. On the 21st, sloughing had nearly reached the orbit, and the entire upper maxilla, was exposed. From this date, the parts gradually assumed a healthy action. On October 1st, the entire right superior maxilla, the vertical plate of the palate bone, and a narrow strip of the left maxilla, being quite separated from the healthy bone, were removed. The great loss of substance on the right side of the face caused frightful deformity. On December 23d, 1863, the patient was discharged from the service of the United States. A colored plaster cast of his face was prepared previous to the patient's discharge, and deposited in the Army Medical Museum. The patient was subsequently the subject of a very successful plastic operation by Dr. Gurdon Buck, which is described by that eminent Surgeon in an illustrated paper in the Transactions of the New York State Medical Society, for 1864. The Specimen was contributed by Assistant Surgeon R. F. Weir, U. S. A. It is numbered 557 in the Surgical Section of the Museum. The history of the case was contributed by Acting Assistant Surgeon J. H. Bartholf, U. S. A.

Photographed at the Army Medical Museum.

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SPECIMEN NO. 2334.—PHOTOGRAPHIC SERIES, NO. 29. *Case of Successful Secondary Amputation at the Right Hip Joint.*

Private Eben E. Smith, Co. A, 11th Maine Vols., aged 19 years, was wounded at the engagement at Deep Bottom, near Drury's Bluff, Va., on August 16th, 1864, by a musket ball, which fractured the head of the right tibia. He was admitted at the U. S. General Hospital at Beverly, New Jersey, on August 22d, 1864.

On admission, the injured knee-joint was swollen and painful, and there was irritative fever of a moderate grade. On September 12th, secondary hæmorrhage occurred, and the thigh was amputated by circular incisions at the lower third, by Acting Assistant Surgeon I. M. Merton, U. S. A., the patient being under chloroform. The case progressed favorably until October 17th, when secondary hæmorrhage recurred, and was arrested by ligating the femoral artery in Scarpa's triangle.

The stump remained swollen and painful and furnished a profuse fetid suppuration. Inflammation supervened; the end of the femur protruded, and was removed by the chain.

Necrosis finally extended as high as the trochanters, and numerous abscesses formed. On January, 19th, 1865, amputation at the hip-joint was performed, under chloroform, by Acting Assistant Surgeon J. A. Packard, U. S. A., the antero-posterior flap operation being adopted. On January 27th there was hæmorrhage from the stump, and the external iliac artery was tied. The ligature separated on February 17th, and two days afterwards there was profuse bleeding from the divided artery, which was contracted by pressure for fourteen days. After this the patient rapidly improved. In April, he was reported well, and Captain Steward Baumgras, one of the artists of the Army Medical Museum, was sent to evenly, and made the drawing from which the photograph was taken. It is numbered 67 in the Surgical Series of Drawings.

On April 12th, 1865, Smith was transferred to White Hall Hospital, near Bristol, Penn. Acting Surgeon W. H. Fernald, U. S. A., reports that, on May 27th, 1865, he was discharged from service, quite well and strong, the wounds being entirely healed.

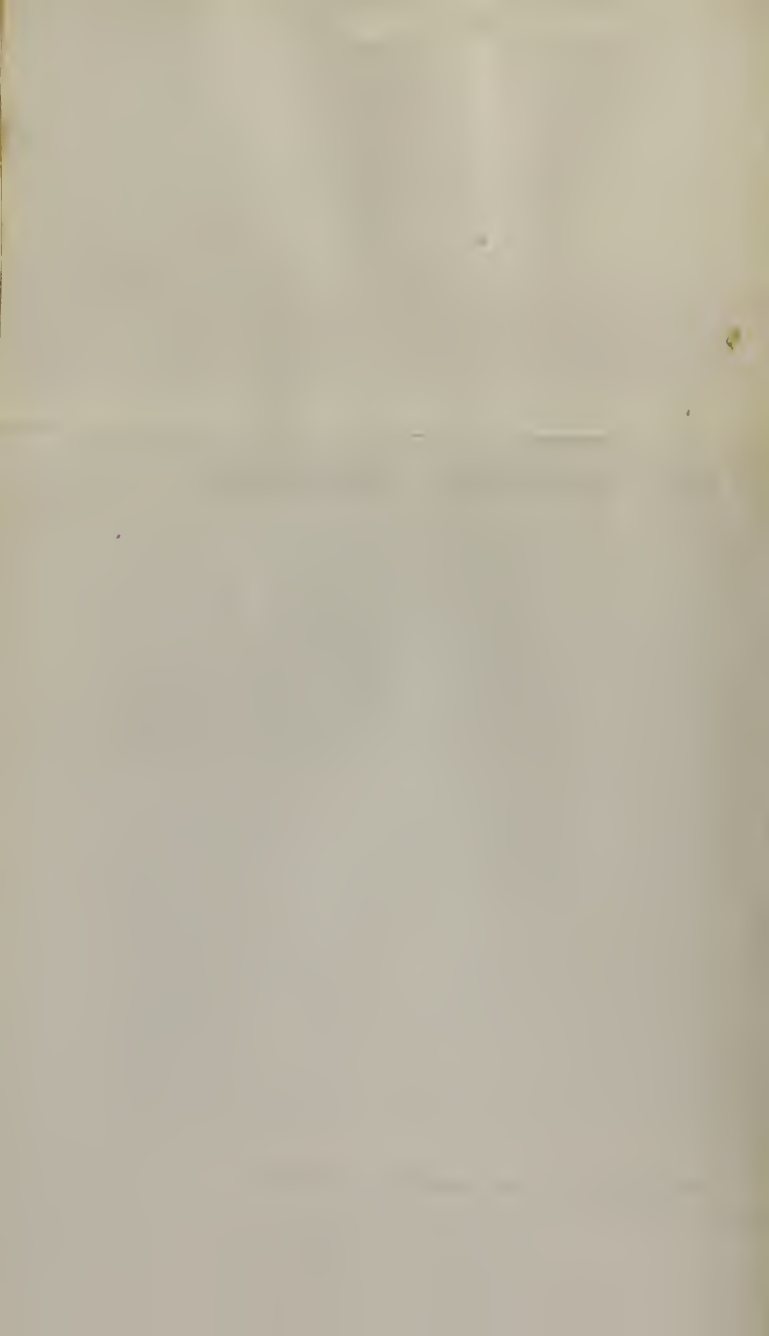
The lower portion of the femur is Specimen 2700; the upper portion is Specimen 2701, A. M. M.

Photographed at the Army Medical Museum,

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SPECIMEN No. 845. *Portions of the Eleventh and Twelfth Ribs of the Right Side, exhibiting Gunshot Fractures of the Shafts, with Attempts at Reparation.*

Private Silas Beckwith, Co. A., 831 New York Vols., was wounded at the battle of Fredericksburg, and was admitted into the Lincoln Hospital, at Washington, December 23d, 1862.

He had been struck by a conoidal musket ball in the back of the right chest, the ball entering over the attachment of the seventh rib, and passing forwards. The ball was extracted, and simple dressings were applied. Pleuro-pneumonia ensued, and resulted in empyema. On January 3d, 1863, a pint of pus was evacuated from the pleural cavity. The case terminated fatally on January 21st, 1863.

The specimen was contributed by Surgeon H. Bryant, U. S. Vols., and the particulars of the case were furnished by Surgeon J. Cooper McKee, U. S. A.

At the point of fracture, necrosed splinters are seen, attached by large irregular formations of callus.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

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Surj. U. S. V., Curator A. M. M.

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PHOTOGRAPH NO. 31. *Left Femur, exhibiting a partly consolidated Gunshot Fracture of the Middle Third of the Shaft.*

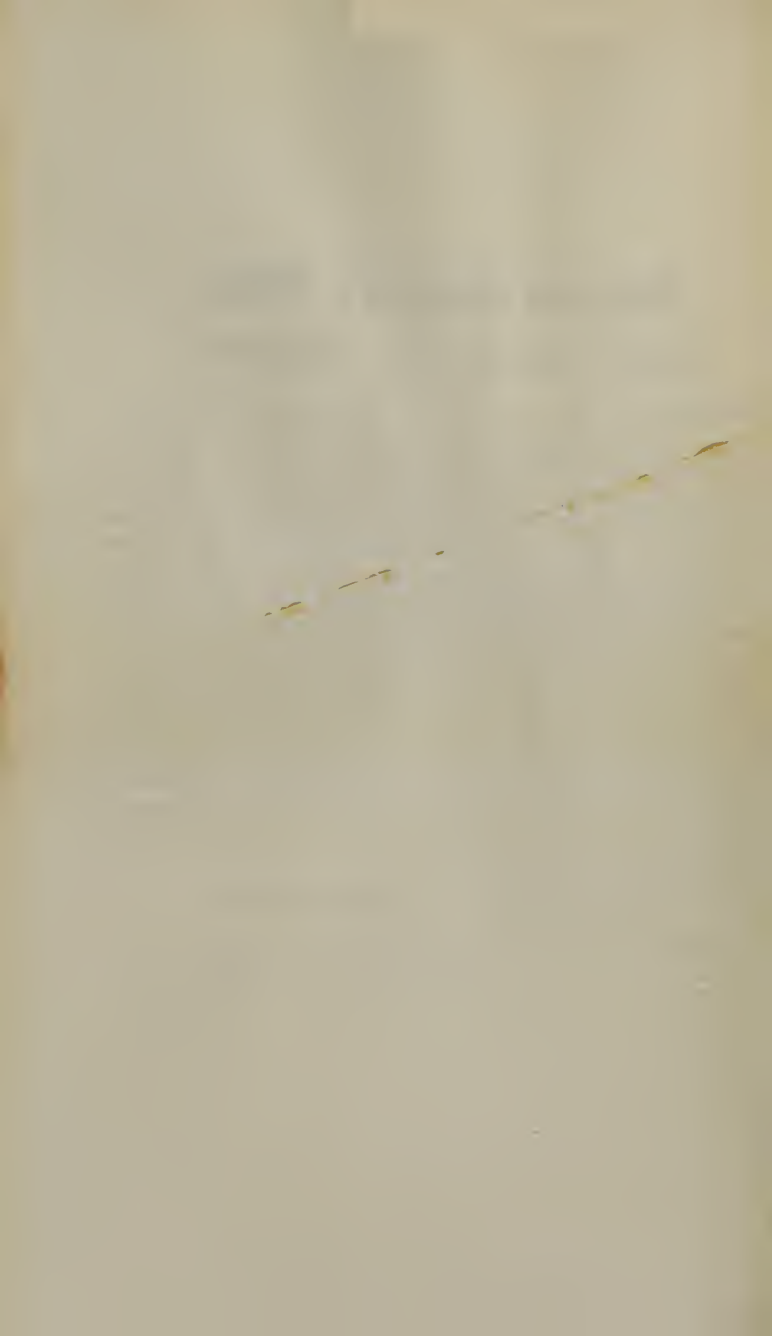
Corporal H. Burns, Co. H, 31st New York Volunteers, was struck by a conoidal musket ball at the battle of Chancellorsville, May 3, 1863. The missile fractured the shaft of the left femur, with the usual longitudinal splintering. On May 8th, the patient was admitted to Douglas Hospital at Washington, and it was decided to attempt to save the limb. The limb was first suspended by Smith's anterior splint. Afterwards Hodgen's apparatus was applied, and apparently answered a better purpose; but large abscesses having formed in the thigh, and free incisions becoming requisite, a long fracture box, filled with bran, was substituted. On June 16, 1863, the ball and several fragments of detached bone were removed. The patient died on July 11, 1863, from exhaustive suppuration. Several days before his death, gangrenous patches appeared on the left leg. The preparation shows well the extent of the fracture and of the reparative process. There are several sequestra enclosed in the large deposit of callus. The specimen, and the facts concerning it, were contributed by Assistant Surgeon William Thomson, U. S. Army.

Photographed at the Army Medical Museum.

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PHOTOGRAPHIC SERIES No. 32. *Shell Wound of the Face.*

Private William H. Nims, Co. D, 61st New York Vols., was wounded June 17th, 1864, in front of Petersburg, Va., and was admitted into Columbian College Hospital, at Washington, June 22d, 1864.

He was struck by a fragment of shell, which evacuated the humours of the right eye, and fractured the nasal bones and right superior maxilla.

The treatment consisted in the removal of fragments of bone, and adjustment of the lacerated soft parts.

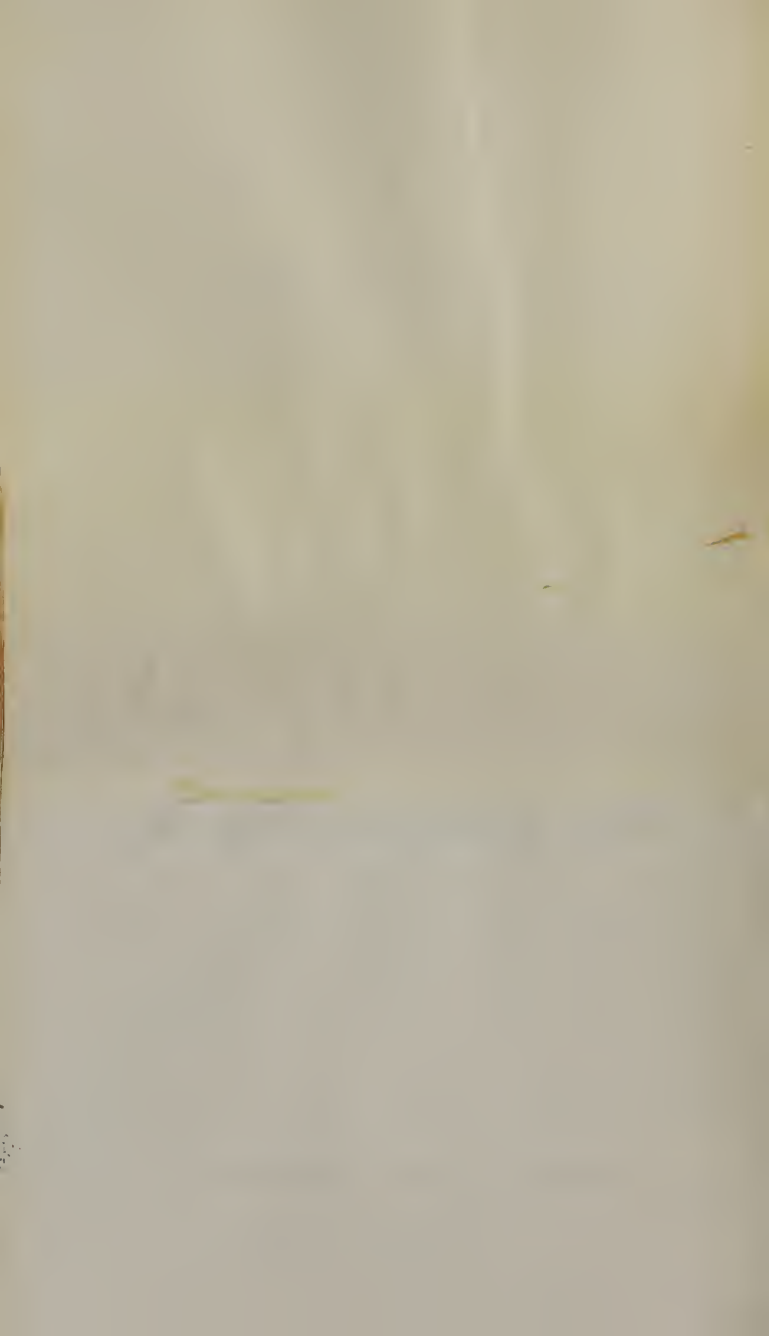
At this date, April 25th, 1865, there is a small fistula, communicating, probably, with a necrosed fragment of the spongy bones.

Photographed at the Army Medical Museum,

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Surg. U. S. V., Curator A. M. M.,



Specimen No. 3504

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SPECIMEN No. 3504. *Bones of the Right Leg, comminuted by a Conoidal Musket Ball.*

A general officer was wounded at the assault on Port Hudson, May 27th, 1863, by a conoidal musket ball, which passed from the inner to the outer side of the right leg, and shattered the upper thirds of the tibia and fibula.

A staff surgeon extracted a number of detached fragments of bone, and then sewed up the wounds by the glover's suture.

On June 2d, the patient was removed to New Orleans; the sutures were clipped, and decomposed coagula, pus, and bone splinters in large quantities were evacuated. The constitutional symptoms were of the most aggravated character.

About the middle of June, amputation was performed at the lower third of the thigh by Professor Warren Stone, with the very slightest hope of success. The patient, however, struggled through, and, ultimately, wore an artificial limb with comfort.

The specimen and the particulars of the case were contributed by Prof. F. Bacon, of Yale College, formerly Surgeon U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. V., Curator A. M. M.

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SPECIMEN NO. 1257. *Section of the Right Parietal Bone, exhibiting a Gunshot Fracture. The Outer Table of the Skull is slightly and the Inner Table extensively depressed.*

Private George V. — Co. C, 84th New York Vols., was wounded at Chambersville, May 6d, 1863, and admitted into Carver Hospital, at Washington, D. C., on May 7th, 1863.

His injury was supposed to be a simple scalp wound from a musket ball. It was situated over the right parietal protuberance, and, on admission, was granulating kindly.

Ten days subsequently, the patient, after a walk out of doors, had headache and nausea, and the wound gaped, and its edges ulcerated.

On the 18th of May, the probe detected denuded bone; but no fracture was discovered. There were no febrile or cerebral symptoms.

On May 20th, a depression of the outer table of the skull was detected. At night, there was delirium, and the following day the pulse became feeble and irregular, the stomach irritable, the tongue heavily furred.

The patient died on May 22d, 1863, being conscious and rational to the last.

At the autopsy, extensive inflammation of the dura mater was observed, and softening of the middle lobe of the right cerebral hemisphere.

Photographed at the Army Medical Museum.

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SPECIMEN No. 3267. *Lower Half of Left Femur, exhibiting a partially Consolidated Gunshot Fracture of the Shaft. The deformed Callus encloses several Necrosed Splinters and a battered Musket Ball.*

Sergeant Sewell T. Douglas, Co. G, 1st. Regiment Maine Heavy Artillery, aged 28 years, was wounded at the battle of Spotsylvania, and was admitted to Emory Hospital, at Washington, May 22d, 1864. A musket ball, entering posteriorly, had fractured the lower third of the left femur and lodged in the medullary cavity.

The injured limb was placed on a double inclined plane, and moderate extension was used. Internally, stimulants and tonics were employed.

In August, 1864, the patient suffered from severe diarrhoea. There was also an ill-conditioned discharge from the wound.

The patient died, September 26th, 1864, from exhaustion.

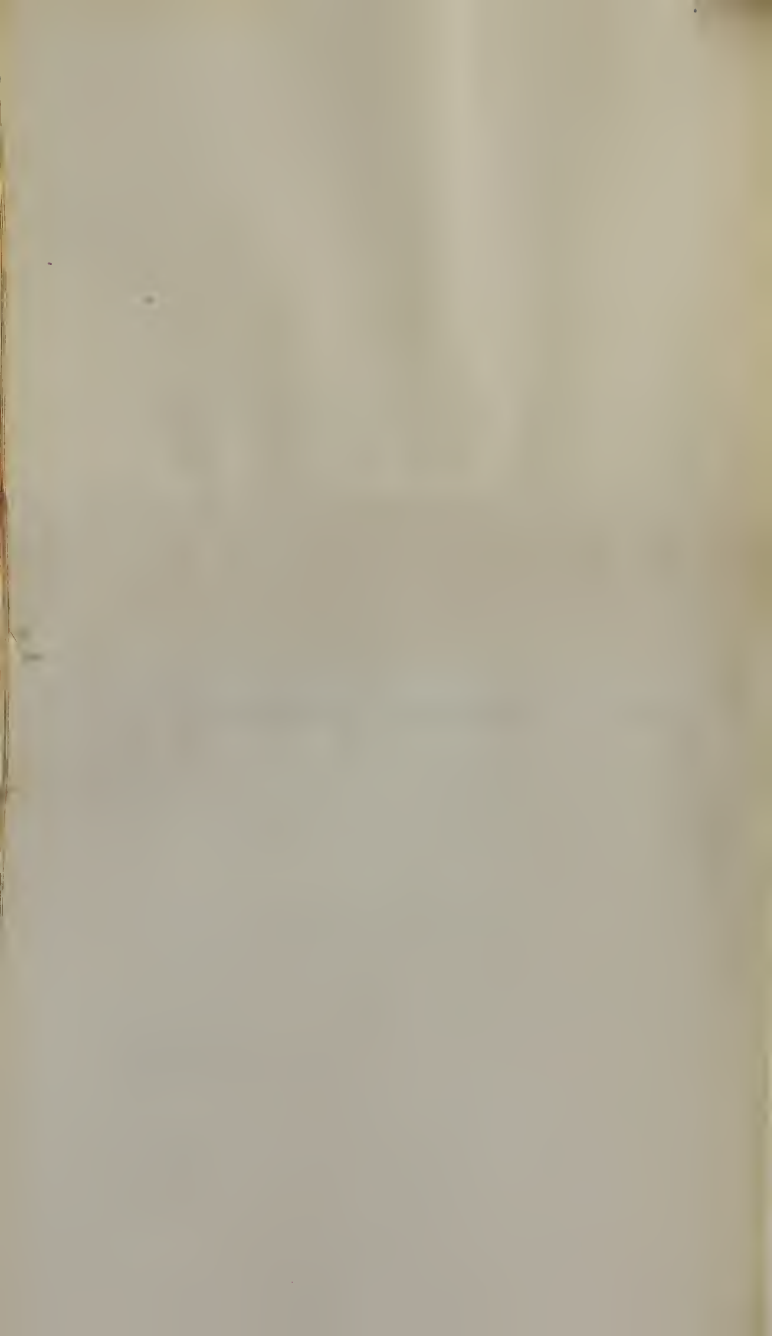
Assistant Surgeon J. M. Downs, U. S. A., in charge of the post-mortem examination, and forwarded the specimen.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



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PHOTOGRAPH No. 36. *Partially Consolidated Gunshot Fracture of the Upper Third of the Left Femur.*

Private Christian Holzworth, Co. B, 20th Indiana Volunteers, was wounded at the second battle of Manassas, August 29, 1862, by a conoidal musket ball, which entered on the anterior aspect of the upper third of the left thigh, and lodged against the femur, which was fractured with extensive longitudinal splitting. He was conveyed to Armory Square Hospital at Washington. No particulars of the treatment employed can be ascertained; but it is reported that in March, 1863, he was able to go about on crutches, and that he was "doing well" until the latter part of May, when an attack of cerebro-spinal meningitis supervened, and terminated fatally on the 25th of May, 1863. Upon the examination of the injured limb, the fractured extremities of the femur were found to be united, with great angular deformity, by irregular arches of callus. A fragment of the ball was enclosed between the arches. The specimen was contributed by Assistant Surgeon C. C. Byrne, U. S. Army. It is figured on page 280 of the Catalogue of the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH NO. 37. *Upper Third of Left Humerus shattered by a Musket Ball.*

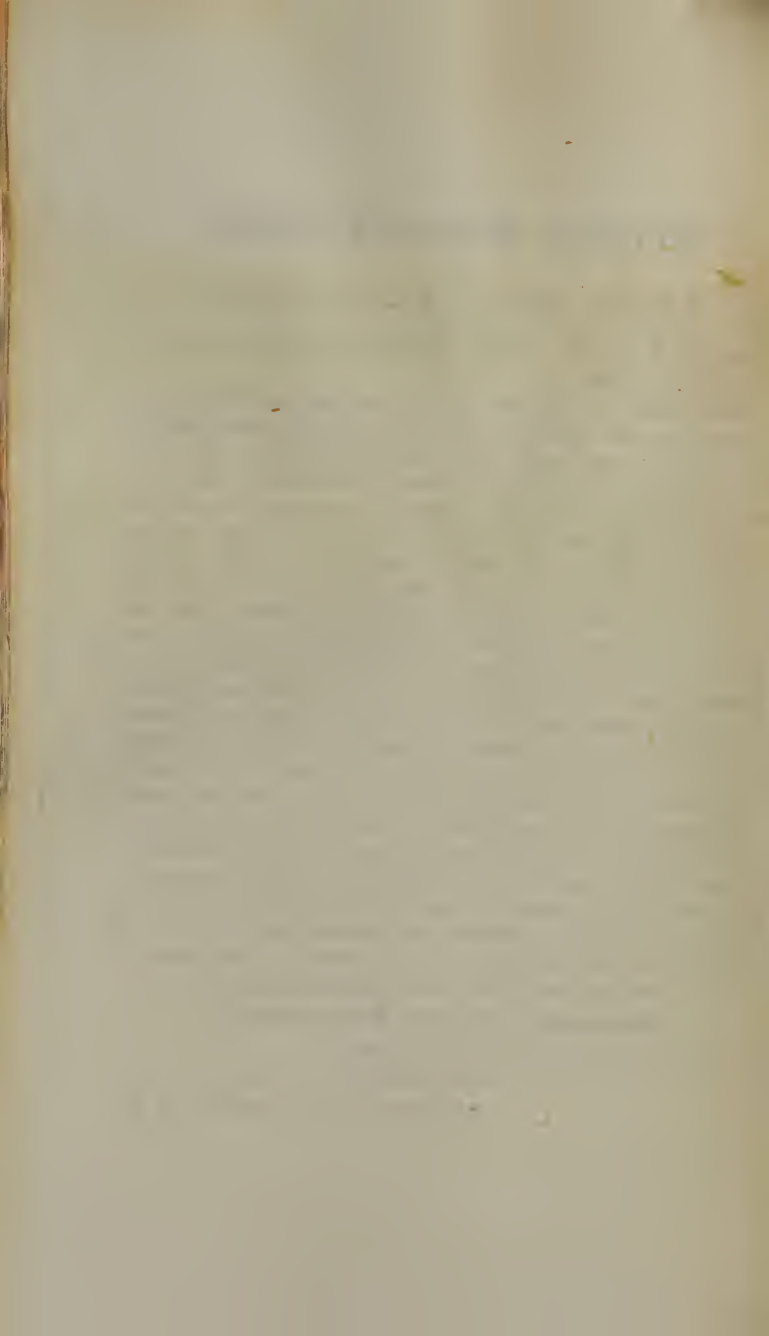
Private George B. Stannard, Co. F, 17th Vermont Infantry, was wounded before the entrenched lines of Petersburg, Virginia, September 30, 1864, by a conoidal musket ball, which entered the upper part of the left arm posteriorly, comminuted the humerus, and lodged. The patient was transferred by an hospital steamer to Alexandria, Virginia, and entered King Street Hospital on October 13th. At that date the arm was much swollen. There was an incision, three inches in length, extending upwards and downwards from the wound of entrance; its lips were everted, and of an unhealthy aspect. The patient stated that he had been put under the influence of ether at the field hospital, and that the wound had been carefully explored; but he could not tell whether the ball or fragments of bone had been removed. On October 16th, there was profuse secondary hæmorrhage. The incision was extended, and a battered musket ball, impacted just below the anatomical neck, was removed, together with the head and five inches of the shaft of the humerus. Three bleeding vessels were secured, and the wound was left open for several hours, when, all oozing having ceased, it was closed by sutures and adhesive strips. On the following day there was a chill, followed by an intense febrile reaction, with irritability of stomach, hicough, a glazed tongue, and an ichorous offensive discharge from the wound. On the 18th, the wound was gangrenous, and hæmorrhage recurred, and at night the case terminated fatally. The specimen, No. 3289, Section 1, and history were contributed by Surgeon Edwin Bentley, U. S. Vols.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Ass't Surg. U. S. A., Curator A. M. M.



Specimen No. 1042.

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 1042. *Upper Half of Right Femur, showing a firmly consolidated Gunshot Fracture immediately below the Trochanters.*

Private Luman M. Millins, Co. K, 6th Regiment Pennsylvania Reserves, was wounded at Antietam Sept. 17th, 1862, by a conoidal musket ball, which entered a little below the great trochanter of the right thigh, shattered the upper third of the femur, and lodged beneath the skin on the inner part of the thigh, whence it was extracted through an incision.

The patient was treated in a field hospital until the middle of October, when he was transferred to the general hospital at Snodgrass. Although a slender man, with a narrow chest and feeble organization, his condition on admission was satisfactory.

During the autumn of 1862, the suppuration was copious, and fragments of necrosed bone were occasionally discharged. Under a nourishing diet the patient's strength was supported remarkably.

On January 21st 1863, the fracture was firmly consolidated. The limb was shortened four inches. There was no oedema. The wound on the inner side of the thigh had closed. There was a slight fistula with trifling discharge at the wound of entrance. The patient passed several hours daily in the open air on crutches.

About this time cough and night sweats and other indications of tuberculosis of the lungs appeared, and confirmed phthisis was soon established. The patient died March 9th, 1863.

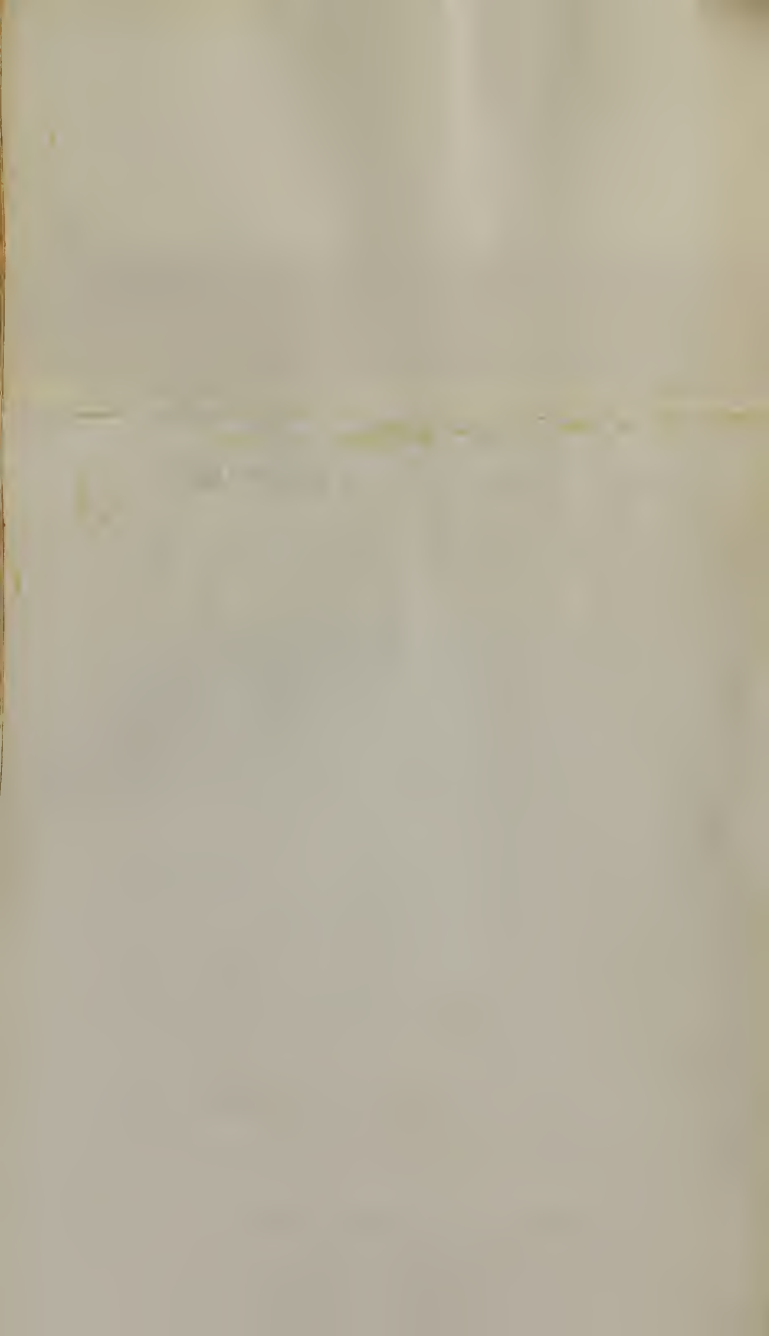
The specimen and account of the case were contributed by Surgeon B. G. Vanderkief, U. S. A.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Photographed at the Army Medical Museum.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1210. *Right Clavicle fractured transversely in the Middle by a Conoidal Musket Ball.*

Sergeant Samuel Adamson, Co. F, 125th Pennsylvania Vols., was wounded at Chancellorsville, May 3d. and admitted into Carver Hospital, at Washington, May 8th, 1863.

He had been struck by a conoidal musket ball, which entered a little to the right of the third dorsal vertebra, fractured the neck of the third rib, passed through the upper lobe of the right lung, and having fractured the clavicle, lodged behind it.

There was cough and bloody expectoration. Air entered the wound freely. On the 16th symptoms of pneumonia supervened. There was a copious discharge of sero-sanguinolent pus.

On May 20th, 1863, the case terminated fatally. The ball was found in contact with the fractured clavicle, as represented in the preparation. The fracture in this case is perfectly transverse, a result due, undoubtedly to the greatly diminished momentum of the ball.

The specimen and history were contributed by Dr. B. F. Craig.

Photographed at the Army Medical Museum.

ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1915. *Sequestrum from Right Tibia, involving nearly the Entire Shaft.*

Private Westley Frost, Co. E, 85th Illinois Vols., aged 29 years, was admitted to a branch of Hospital No. 1, Nashville, Tennessee, with a simple ulcer on the right leg, and as a convalescent from pneumonia.

In a day or two, the ulcer began to slough, when it was treated by free applications of bromine, tonic, and stimulating constitutional measures being adopted at the same time.

About May 1st, the tibia became denuded, and small exfoliations were from time to time thrown off from it. By the middle of June, two-thirds of the crest of the tibia was exposed, and the greater portion of the shaft of the bone was affected with necrosis.

On July 27th, the sequestrum, $11\frac{1}{2}$ inches in length, was found to be lying loosely in the imperfectly formed involucrum, and it was removed without the aid of the knife or bone forceps.

The general health now improved and the process of repair of the extensive loss of substance in the leg went on rapidly until August 20th, when an attack of jaundice supervened; subsequently the patient sank into a typhoid condition; abscesses burrowed in the affected limb, bed sores formed, incessant gastric irritability occurred, and symptoms were manifested that were regarded as conclusively indicative of the presence of pyæmia. On September 23d, 1863, the patient died.

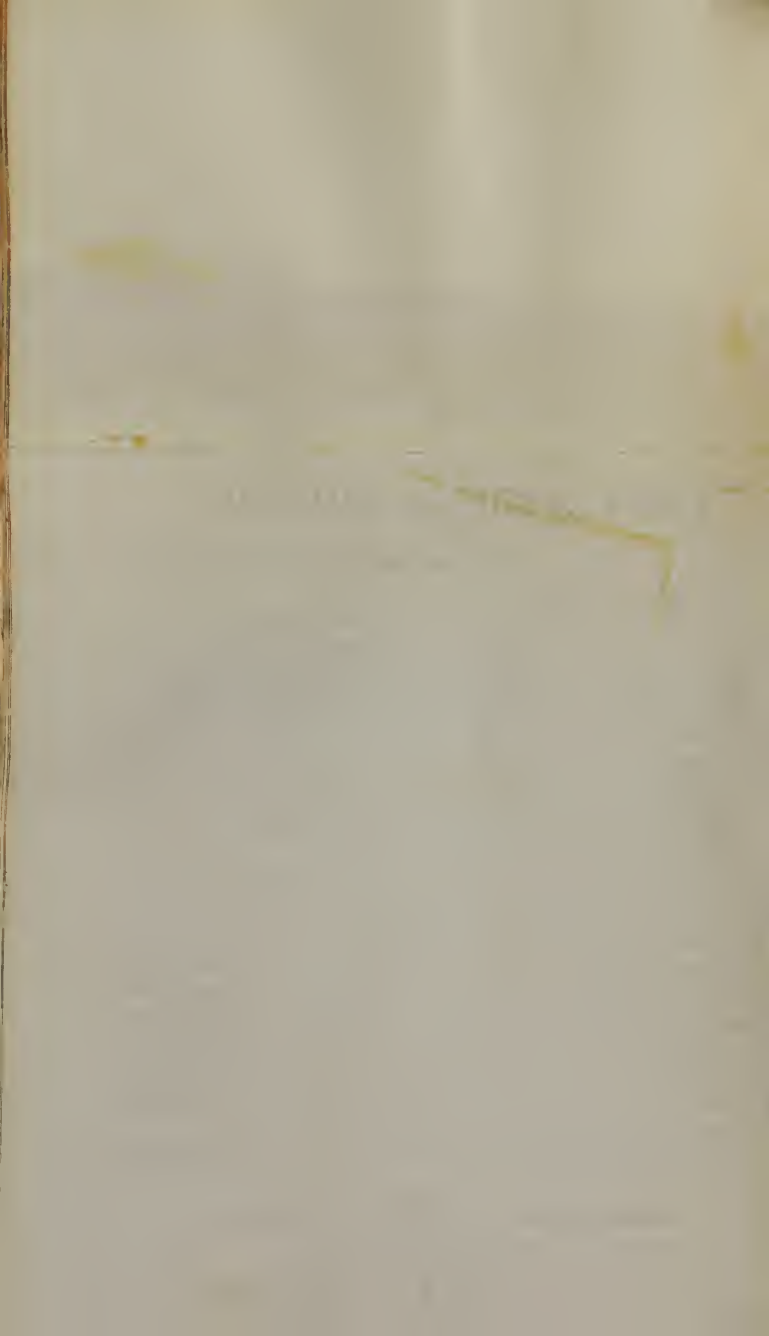
The specimen and facts connected with it were contributed by Surgeon Caleb W. Horner, U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 41. *Recovery after Excision of the Head and Upper Portion of the Shaft of the Left Femur shattered by a Musket Ball.*

Lieut. Jarratt, of the 15th North Carolina (Confederate) Regiment, having a comminuted gun-shot fracture of the upper extremity of the left femur, underwent, January 9th, 1864, an excision of the head, trochanters and several inches of the shaft. The operation was performed at Richmond, Va., by Dr. Read, formerly of the Savannah Medical College.

The patient is said to have so far recovered at the expiration of six weeks from the date of the operation, as to be able to be removed to his home in North Carolina. He was last heard from in September, 1864, when all sinuses had healed, and considerable weight could be borne by the injured limb.

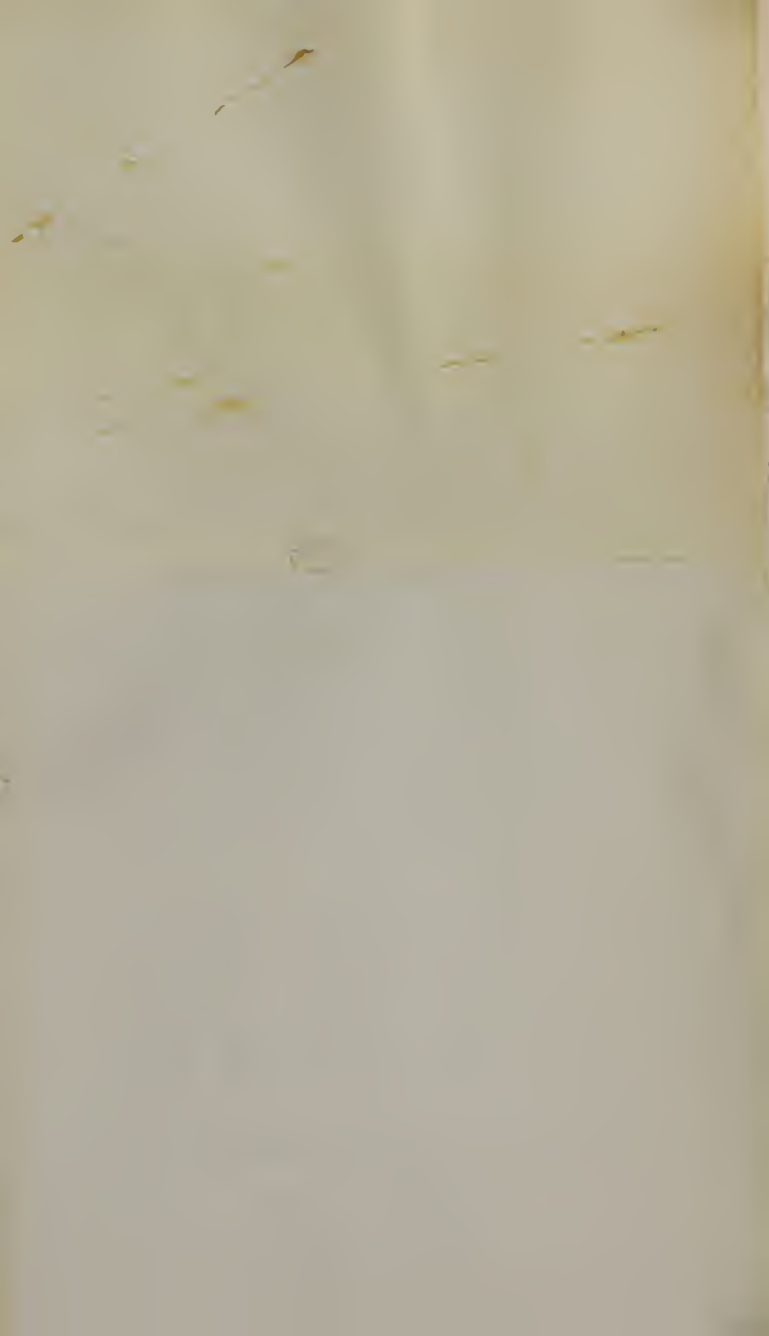
These particulars and the photograph of the patient were communicated by Assistant Surgeon E. W. Latimer, of the Confederate Army, to Acting Staff Surgeon W. H. Palmer, U. S. A., by whom they were forwarded to this Office.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 2749. *Right Humerus and Elbow—Necrosis of the Entire Humerus following Gunshot Fracture of the Epiphysis.*

Private Barney White, Co. I, 37th N. Y. V., aged 22 years, was wounded at Williamsburg, Va., May 5th, 1862, in the right elbow by a conoidal musket ball. A simple dressing was applied, and he was removed to Yorktown, and thence to Philadelphia, where he was admitted to Race Street Hospital.

No report can be obtained of the progress of the case until March 13, 1863, when the patient was transferred to the McClellan General Hospital, at Nicetown, with extensive necrosis of the shaft of the humerus and caries of the elbow joint. About the joint and arm, there were numerous sinuses, through which a profuse purulent discharge escaped, and, occasionally, small fragments of detached bone.

Under a supporting treatment, the general condition improved.

About the middle of July, it was first noticed that the patient's legs were œdematous. General anasarca ensued, and an examination of the urine showed that it was highly albuminous. The patient became rapidly worse, and, on August 12th, an uncontrollable diarrhœa set in, accompanied by vomiting. The case terminated fatally, August 22d, 1863.

The characteristic lesions of Bright's disease were revealed at the autopsy.

The specimen was forwarded by Acting Assistant Surgeon C. H. Beardsman, U. S. A. Additional particulars of the case were contributed by Surgeon Lewis Taylor, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Surg. U. S. V., Curator A. M. M.

Specimen No. 1333

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1333. *Right Fibula and Phalanx, amputated by a Cannon Ball.*

Major George W. H. Sikes, U. S. Vols., was wounded on the second day of the battle of Gettysburg, July 1, 1863, by a cannon ball and when a surgeon first treated him.

General Sikes was on horseback at the time, but unattended. He succeeded in quitting his affrighted horse and in dismounting (assisted). After lying prone for a while he was returned a short distance to the rear to a field hospital, and amputation was performed by doctors in the field. Surgeon Thomas S. U. S. Vols., Medical Director of the Army. The patient was then sent to the hospital and the following day was removed to Washington.

The stump healed with great rapidity. On July 16th the patient was able to sit up in his carriage. Early in September, 1863, the stump was completely cicatrized, and the general was able again to mount his horse.

The specimen was contributed to the Army Medical Museum by General Sikes, and the name of the surgeon, Dr. Sikes.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. COLES,

Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 44. *Gunshot Fracture of both Parietals. Recovery.*

Private John W. Snyder, Co. B, 49th Pennsylvania Vols., was wounded by a conoidal musket ball, April 1, 1865, in an assault upon the entrenched lines at Petersburg, and was admitted to Judiciary Square Hospital, at Washington, April 12th, 1865.

On admission, he had dilated pupils, a slow pulse—56 per minute, unconsciousness and stupor. He could be aroused to consciousness. There was no paralysis. On April 13th, a fragment of depressed bone, three-fourths of an inch square, was removed, and the symptoms of compression of the brain gradually subsided.

During his convalescence, it was noticed that his vision was impaired, especially on the left side. On June 13th, the wound had cicatrized except a one minute point. It is probable that there was here a communication with a small necrosed fragment of bone.

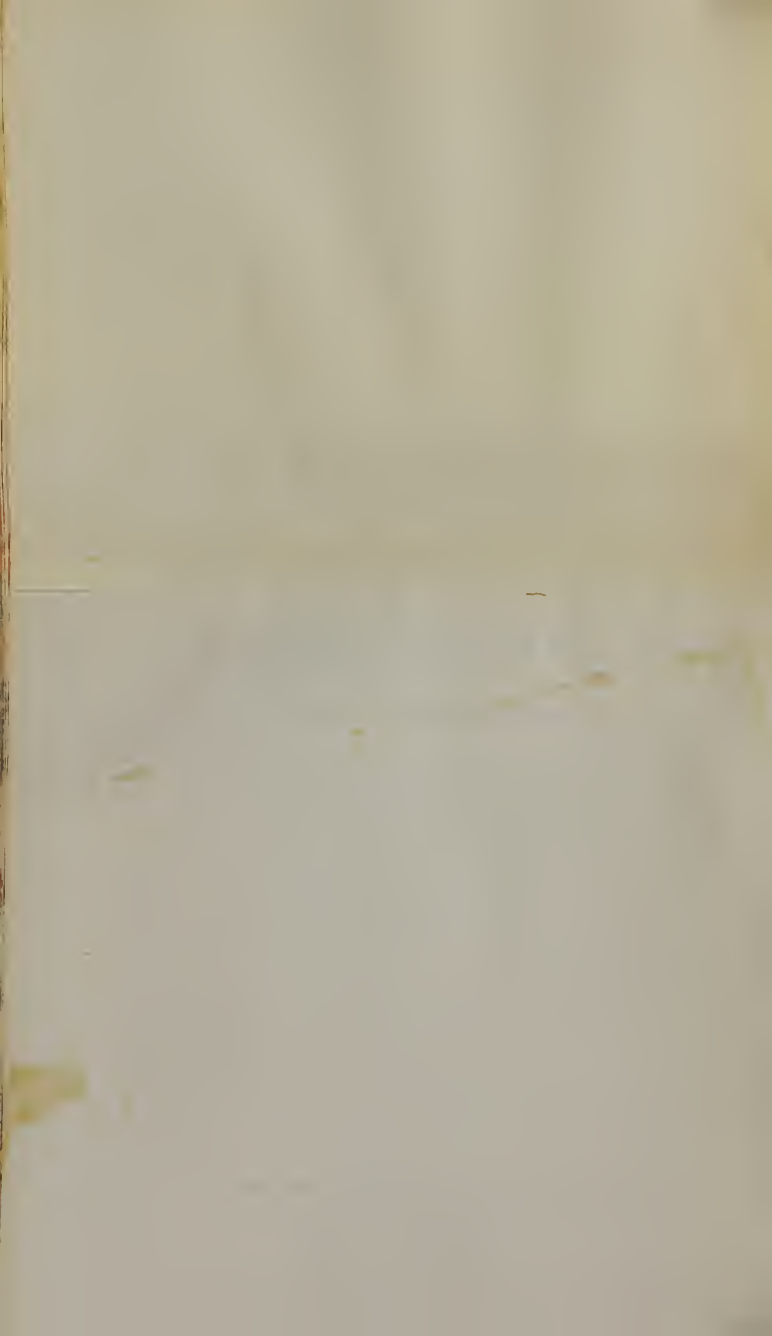
The facts of the case were contributed by Assistant Surgeon Brinton Stone, U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surgeon U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 45. *Consolidated Fracture of
Right Femur.*

Private Clement H. Schellinger, C. C. 9th New York Heavy Artillery, was wounded at the assault on Fort Fisher, North Carolina, April 2d, 1865, by a musket ball, which fractured the lower third of the shaft of the right femur.

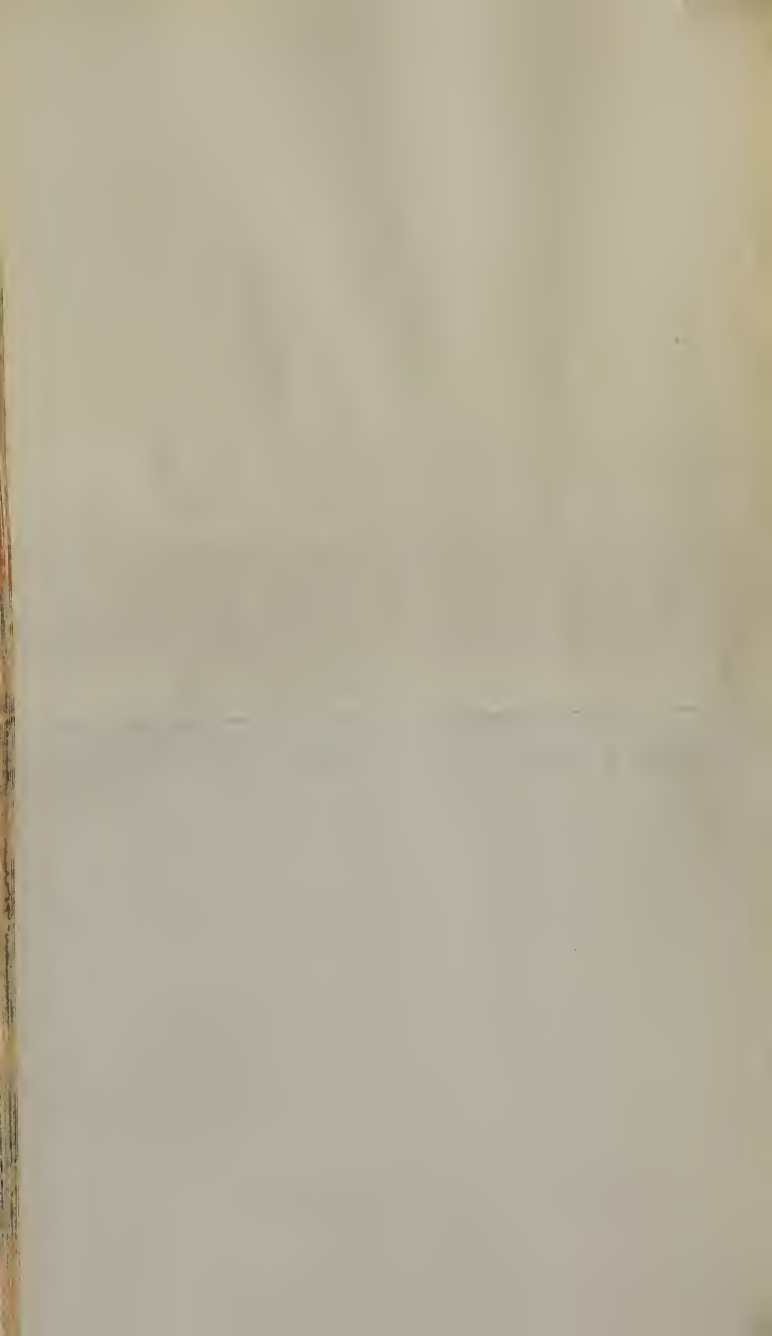
He was treated by maintaining the limb in position by sand-bags, and subsequently by a straight splint. The progress of the case throughout favorable, and, early in June, the wound had closed. At the date at which the photograph was taken, a sinus had opened and discharged slightly. There appeared, however, to be but little doubt of the patient's ultimate recovery with a useful limb. There was slight eversion and one and a half inches shortening.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 46. *Consolidated Gunshot Fracture of the Lower Third of the Right Femur.*

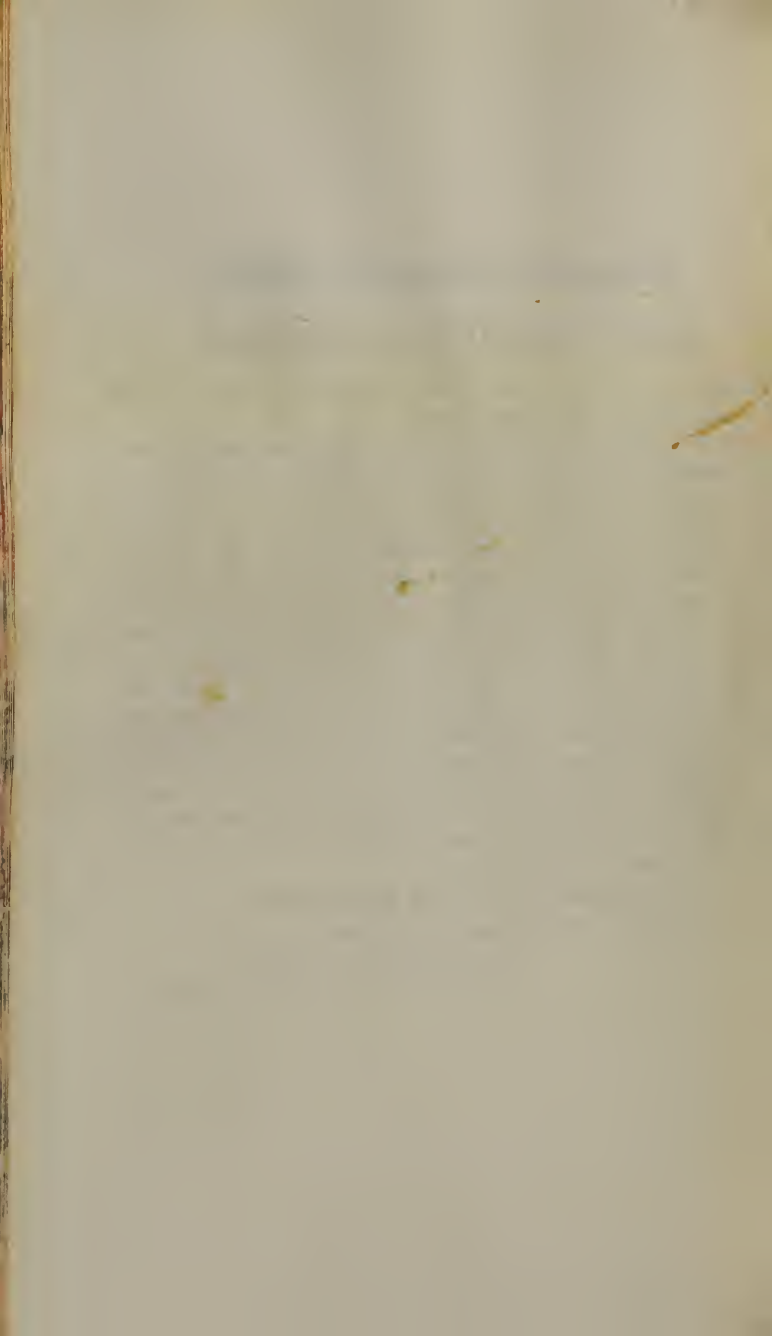
Private Jacob Durst, Co. D, 69th New York Volunteers, aged 21 years, was wounded, March 25, 1865, at the battle of Hatcher's Run, by a conoidal musket ball, which passed through the right thigh, five inches above the patella, from before backwards, splintering the femur. The patient was admitted to Armory Square Hospital, March 30, 1865, and was treated with Hodgen's apparatus until April 14th, and subsequently by Buck's method. There was comparatively little constitutional disturbance at any time, and the suppuration was slight. On June 9, 1865, the fracture had firmly united, with $1\frac{1}{4}$ inches shortening. On June 23, 1865, the photograph was taken. The movements of the knee-joint were perfect. The wound of exit was still open, and discharged a trifling quantity of healthy pus. The patient was able to walk about briskly on crutches, and his general health was excellent. He was transferred on July 21, 1865, to Albany, to be mustered out. His name does not appear on the rolls of the Pension Office. The particulars of the case were furnished by Acting Assistant Surgeon George K. Smith, U. S. Army, by whom the treatment had been conducted.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 2393.—PHOTOGRAPHIC SERIES. NO. 47. *United Gunshot Fracture of the Lower Third of the Left Femur.*

Private Michael Burns, Co. B, 28th Massachusetts Vols., was wounded by a conoidal musket ball. at the engagement at Hatcher's Run, Va., March 25th, 1865. The ball entered the anterior portion of the thigh, about four inches above the outer margin of the patella, and passed backwards, fracturing the femur, and making its exit posteriorly on a level with the wound of entrance.

Burns was admitted into Armory Square Hospital, at Washington, April 3d, 1865. There was but slight constitutional disturbance, and the wounds discharged but about half an ounce of laudable pus in twenty-four hours. The injured limb was shortened two inches. It was placed on a mattress and supported by sand bags, and extension was made by a weight of sixteen pounds. A liberal diet was ordered and twenty-drops of the tincture of the sesquichloride of iron thrice daily; but no stimulants.

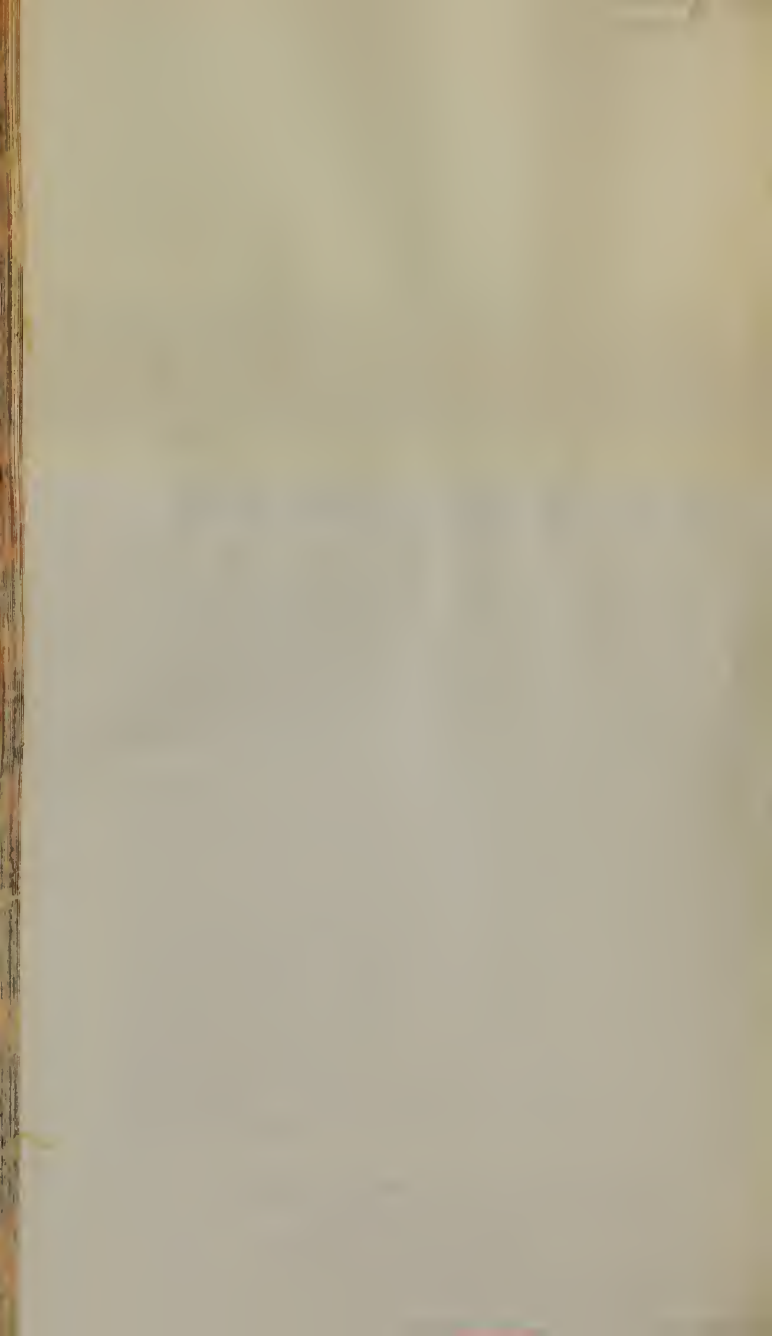
On April 14th, the discharge was diminished to one drachm daily, and the shortening was reduced to one and a quarter inches. On May 11th, union was believed to be complete, and extension was removed and the patient allowed to walk about on crutches. On June 25th, the photograph was taken at the Army Medical Museum. The wounds were entirely healed, and the femur appeared to be firmly united. On July 5th, 1865, the patient was transferred to the U. S. General Hospital at Readville, Massachusetts.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

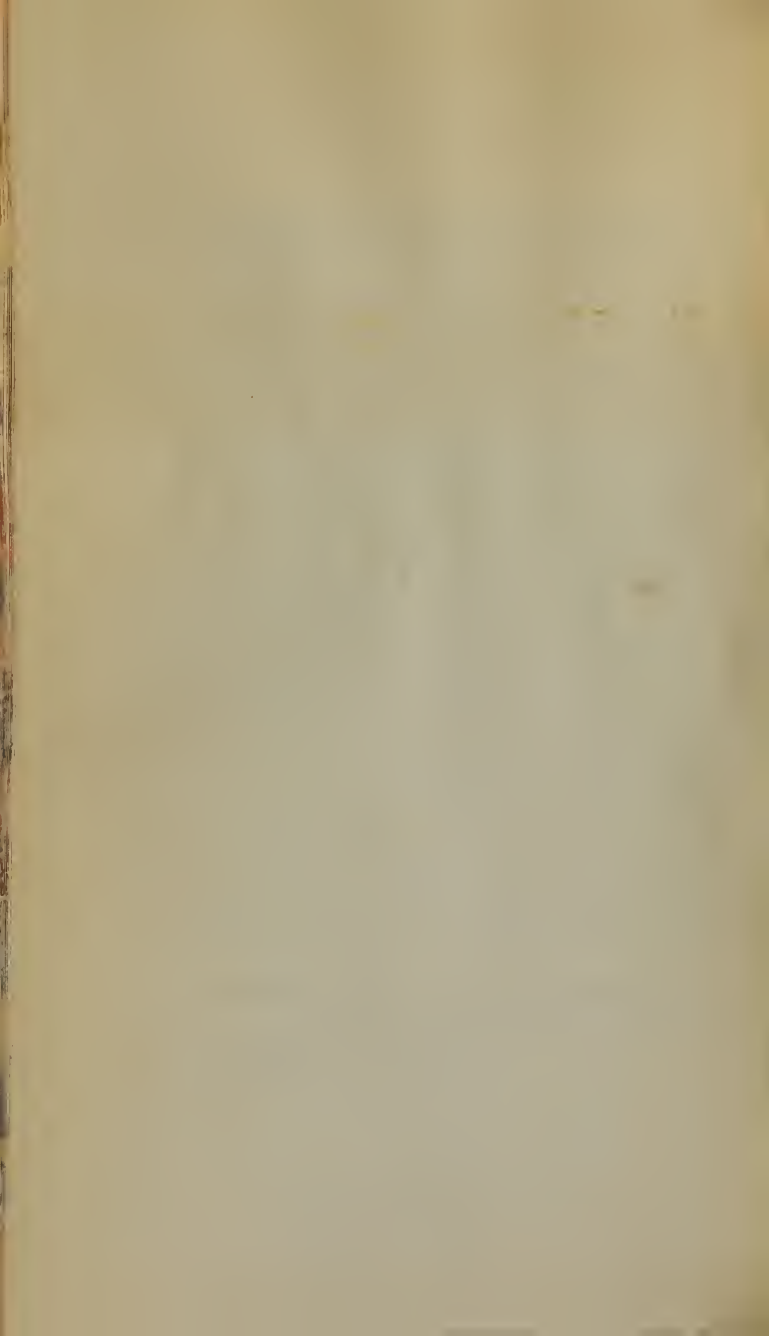
PHOTOGRAPH No. 48. *United Gunshot Fracture of the Upper Third of the Left Femur.*

Private Thomas L. Delap, Co. B, 32d Wisconsin Volunteers, was wounded February 3, 1864, in an engagement on the Coosahatchie River, by a conoidal musket ball, which fractured the left femur a little below the trochanters, and lodged. Delap was conveyed to the U. S. General Hospital at Beaufort, South Carolina, and was treated there, upon a double inclined plane, until May 6, 1865, when he was transferred to Armory Square Hospital, at Washington. On admission to Armory Square, May 10, 1865, the fracture was found to be firmly united with one and three-quarters of an inch shortening, and slight deformity. There was a slight discharge from the wound. The ball had not been extracted. The patient was unable to walk on crutches. On June 23, 1865, the photograph was taken. The wound had then healed. The ball remained in the limb. The patient could walk satisfactorily on crutches. He complained of inability to flex the injured thigh. The fracture had probably involved the insertion of the psoas and iliacus muscles. On July 13, 1865, the patient was transferred to the U. S. General Hospital at Madison, Wisconsin. He was discharged the service June 12, 1865, and pensioned, his disability being rated total and temporary. On March 19, 1867, Pension Examiner J. Bennett reported this man to be confined to bed with several fistulous openings in the thigh, and suffering from pain, fever, and debility.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 4982.—PHOTOGRAPHIC SERIES, No. 49. *United Gunshot Fracture of the Lower Third of the Left Femur.*

Private James O'Connor, Co. F, 16th Michigan Vols., was wounded at Old Harbor, Va., June 2d, 1864, by a conoidal musket ball, which passed through the thigh, three inches above the patella, fracturing the femur.

The patient was conveyed to Armory Square Hospital, at Washington. The limb was maintained in position by Hodgkin's Splint. No extension was made. In the course of the treatment, eight small fragments of bone were removed through the wounds of exit.

In February, 1865, the fracture was firmly united, and the patient was able to walk briskly without any artificial assistance. The posterior wound was not entirely healed. In the latter part of the month he was assigned to the 48th Company of the Second Battalion of the Veteran Reserve Corps, by order of the Provost Marshal General, and was put on guard duty. Being unable to bear the fatigue of guard duty, he was returned to the hospital for treatment.

The photograph was taken June 22d, 1865. The wound was still open and there was slight discharge of sero-purulent matter. There was an inch and a quarter shortening, but no angular deformity. At the seat of fracture, the femur was somewhat enlarged.

O'Connor was discharged from the service, July 18th, 1865.

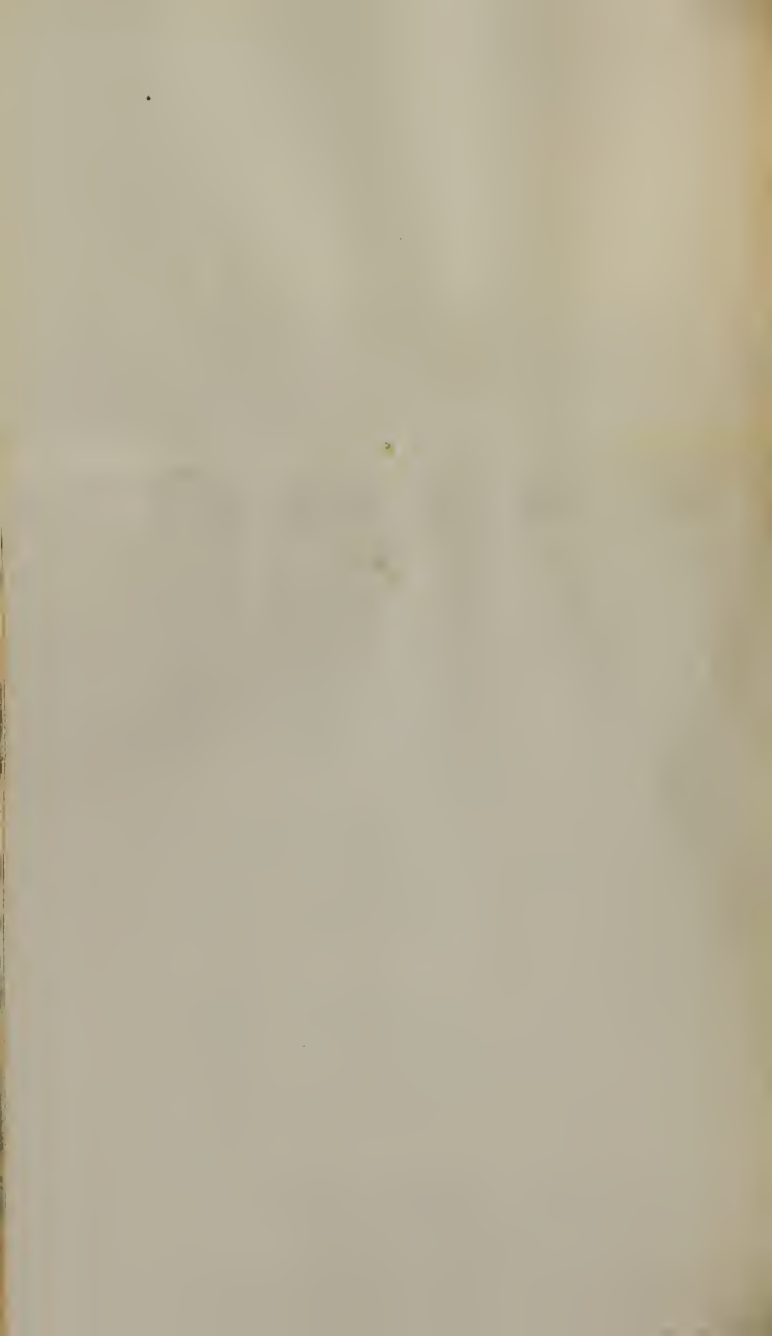
The particulars of the case were furnished by Acting Assistant Surgeon Geo. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lieut. Col. and Surg. U. S. A., Chevalier A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 50. *Completely Consolidated Gunshot Fracture of the Lower Third of the Left Femur.*

Private Charles Westerfield, Co. B, 5th New York Cavalry, aged twenty-two years, was wounded at the battle of the Wilderness, May 5, 1864, by a conoidal musket ball, which produced a comminuted fracture of the lower third of the left femur. He remained for two days in a field hospital, and was then transferred to Fredericksburg in an ambulance. He was treated at Fredericksburg with a starch bandage and moderate extension. On May 25th he was transferred to Armory Square Hospital, at Washington, where the fractured limb was supported by Smith's Anterior Splint. During May and June, a number of fragments of bone were eliminated. In August, the wounds closed and the fracture appeared to be firmly united, and on September 3, 1864, the patient was discharged from service, and was afterwards pensioned, his disability being rated one half and permanent. In the middle of September, 1864, Westerfield was able to walk without crutches. In April, 1865, his limb was photographed at the Army Medical Museum. It was observed that there was complete consolidation of the fracture, with two and a half inches shortening, and slight eversion of the leg. On July 25, 1865, Westerfield was engaged in active out-door employment. He could walk rapidly and without limping, with the aid of a high-heeled boot. There was no sign of necrosis about the fracture, and the wounds had never re-opened.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 51. *Successful Excision of the Head of the Right Humerus.*

Sergeant Clarence A. Winsor, Co. A, 6th Wisconsin Vol., was wounded at the battle of Gravelly Run, March 31st, 1865, by a conoidal musket ball which entered below the middle of the right clavicle, and entered out above and backward, shattering the head of the right humerus. The only way the head of the bone was excised by Surgeon H. M. C. Williams, A. S., through a *curved* incision parallel to the axis of the bone.

May 10, 1865, Winsor was transferred from the 10th Hospital to Ordway Square General Hospital at Washington, in good condition, save an interruption from an attack of erysipelas, which supervened about the middle of May; the case continued to progress most favorably.

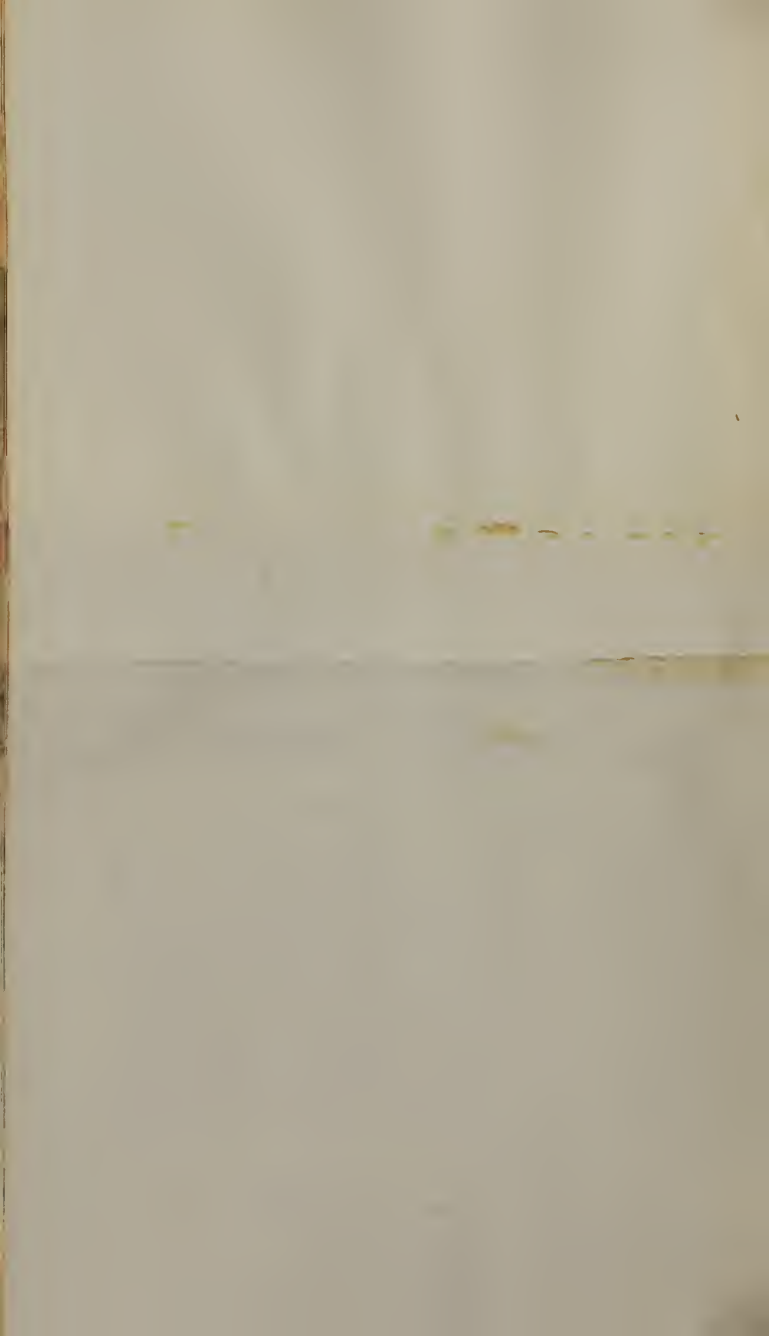
Jan. 7th, 1865, when the patient was photographed, the prospect of an *excellent* limb was very encouraging.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Photographed at the Army Medical Museum.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 3310. *Right Tibia affected with Scrophulous
Osteitis and Necrosis.*

John William Southard, an orphan lad of 14 years, a refugee at Mound
Illinois, was admitted to hospital in October, 1864, on account of
chronic disease of the right leg, of four years duration.

The knee-joint was implicated and numerous old abscesses com-
municated with the shaft of the tibia, which appeared to be necrosed in
great extent.

On October 5th, 1864, amputation at the lower third of the thigh was
practiced by Surgeon H. Wardner, U. S. Vols.

The lad's general health improved after the operation. In December,
1864, a ring of bone exfoliated from the femur. The stump then healed,
and at the end of May, 1865, Dr. Wardner wrote that the result was all
that could be desired.

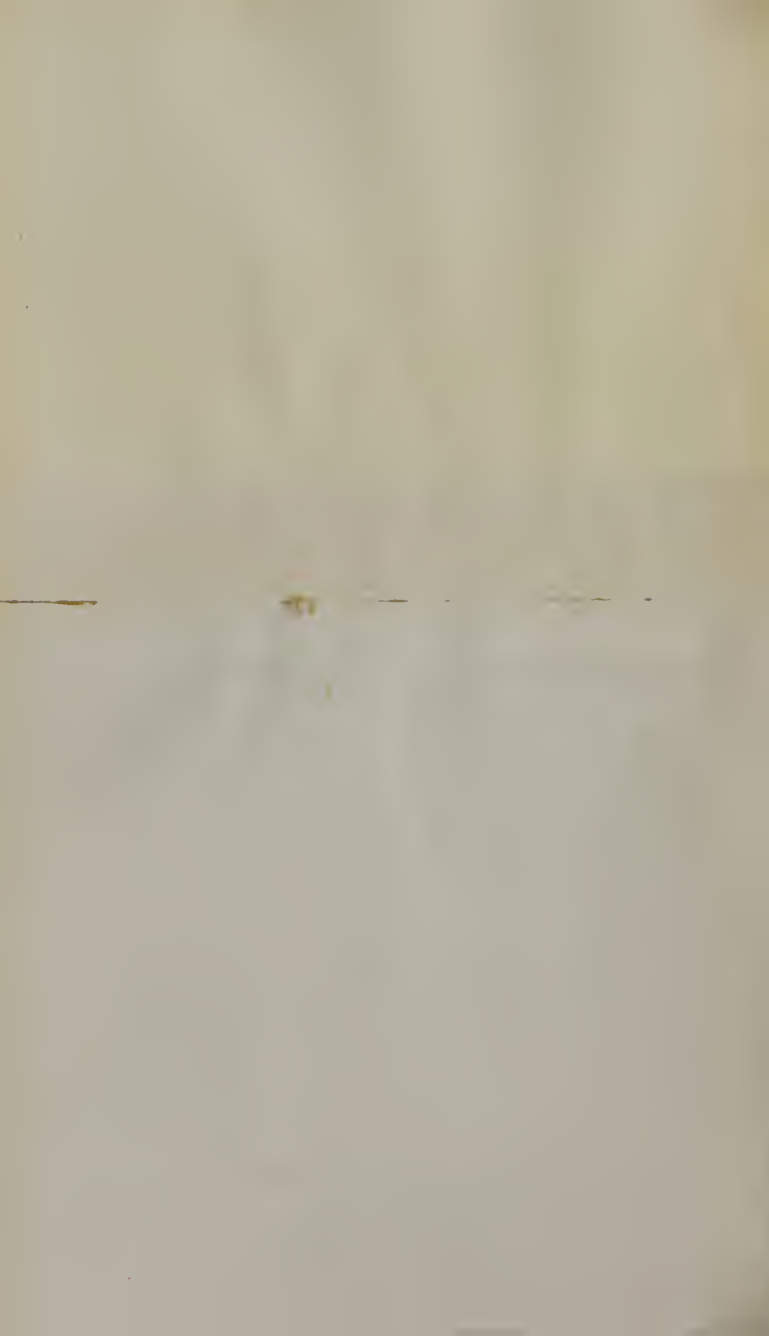
The specimen and the facts relating to it were contributed by the
operator.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 3375 *Head, Neck, and Trochanters of the Right Femur, shattered by a Conoidal Musket Ball and successfully excised.*

Private Hugh Wright Co. G, 8th New Jersey Vols., was wounded at the battle of the Wilderness, May 5th, 1864, and was admitted into Stanton Hospital, at Washington, May 25th, 1864.

A conoidal musket ball, entering an inch to the inner side of the right femoral artery, two inches below Poupart's Ligament, had passed backwards and downwards, shattering the neck and trochanters of the femur, and lodged against bone.

On May 27th, Assistant Surgeon George A. Mursick, U. S. Vols., made a circular incision over the great trochanters, six inches in length, and removed the ball and splinters and excised the head and neck of the femur. During the operation, anæsthesia was maintained by chloroform.

The shock of the operation was great and reaction tardy. On the 30th day, however, when nervous agitation, the pulse was frequent and small, the tongue dry, and thirst excessive. On June 1st, these symptoms had disappeared, the wound healed well, and the patient improved.

From December 1st, a daily and supporting regimen was diligently followed and the patient's progress towards recovery was satisfactory. In November, 1864, and again in February, 1865, abscesses formed at the high, but after poulticing and incision, they gave little trouble.

In April, 1865, Wright moved about on crutches. On the 17th of April he was discharged from the hospital and from the service of the United States. There was still a trifling fibrous condition of the scapulum; but the general health was excellent, and the prospect of ultimate recovery most encouraging.

The specimen and the history of the case were contributed by the operator.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL.

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 3576.—PHOTOGRAPHIC SERIES, No. 54. *Case of Successful Excision of the Right Elbow-Joint for Gunshot Injury.*

Private William D. Riley, Co. D, 86th New York Vols., aged 21 years, was accidentally wounded, at Brandy Station, Va., Nov. 26th, 1863, by a musket ball, which shattered the inner condyle of the right humerus and the olecranon process of the ulna. He was admitted to Mansion House Hospital, at Alexandria, the same day, having bled quite largely on the way.

On December 19th, 1863, Surgeon Charles Page, U. S. A., excised the elbow-joint, employing the H shaped incision. Two and a half inches of the lower extremity of the humerus, an inch of the upper extremity of the ulna, and a small portion of the head of the radius were removed.

The case progressed most favorably, and in May, 1864, Riley went to his home on furlough, with a useful arm. He was subsequently discharged from service.

In 1865, he re-enlisted in Co. K, 5th Regiment, First Army Corps, with the approval of Lieut. Colonel Dougherty, Medical Director of the Corps. "The man went through the manual before me," Surgeon Dougherty writes, "and stated his readiness to do all the duties of a soldier. He wished it recorded that he was competent and prepared, in order that during the term of his service he might be held to full duty. The degree of motion was perhaps one third of the normal amount."

The photograph was taken in June, 1865.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 55. *Consolidated Gunshot Fracture of Left Femur. Firm Union after the Removal of Large Fragments of the Shaft.*

Private Richard Hanlon, Co. C, 5th U. S. Cavalry, was wounded at the engagement at Beverly Ford, Virginia, June 9th, 1863, by a conoidal musket ball, which fractured the left femur below the middle, and caused extensive longitudinal splitting of the bone. The following day he was admitted into Lincoln Hospital, at Washington.

Anæsthesia being induced by ether, the wound was explored by Acting Assistant Surgeon G. K. Smith, and then sufficiently enlarged to permit the removal of numerous fragments of bone, comprising about three inches of the continuity of the shaft. The ball could not be found. The limb was maintained in the straight position by sand bags.

On June 23d, 1863, an abscess opened near the perineum, and the ball was extracted from its cavity.

On October 1st, 1863, there was enough union to allow the patient to rotate the limb on its axis. There was three inches shortening. On December 16th, while walking on crutches, the patient fell and re-fractured the femur. By March 6th, 1864, the bone was firmly united, and the wound of entrance was closed. In the middle of June the wound re-opened, and there was a slight discharge until March, 1865. The patient was able to walk about during this period, and served as a watchman at the Government Repair Shops.

The photograph was taken, June 20th, 1865. At that date the limb appeared to be perfectly sound. There were no sinuses, and the fracture was apparently firmly consolidated. The patient could walk long distances without fatigue. There was false ankylosis of the knee-joint.

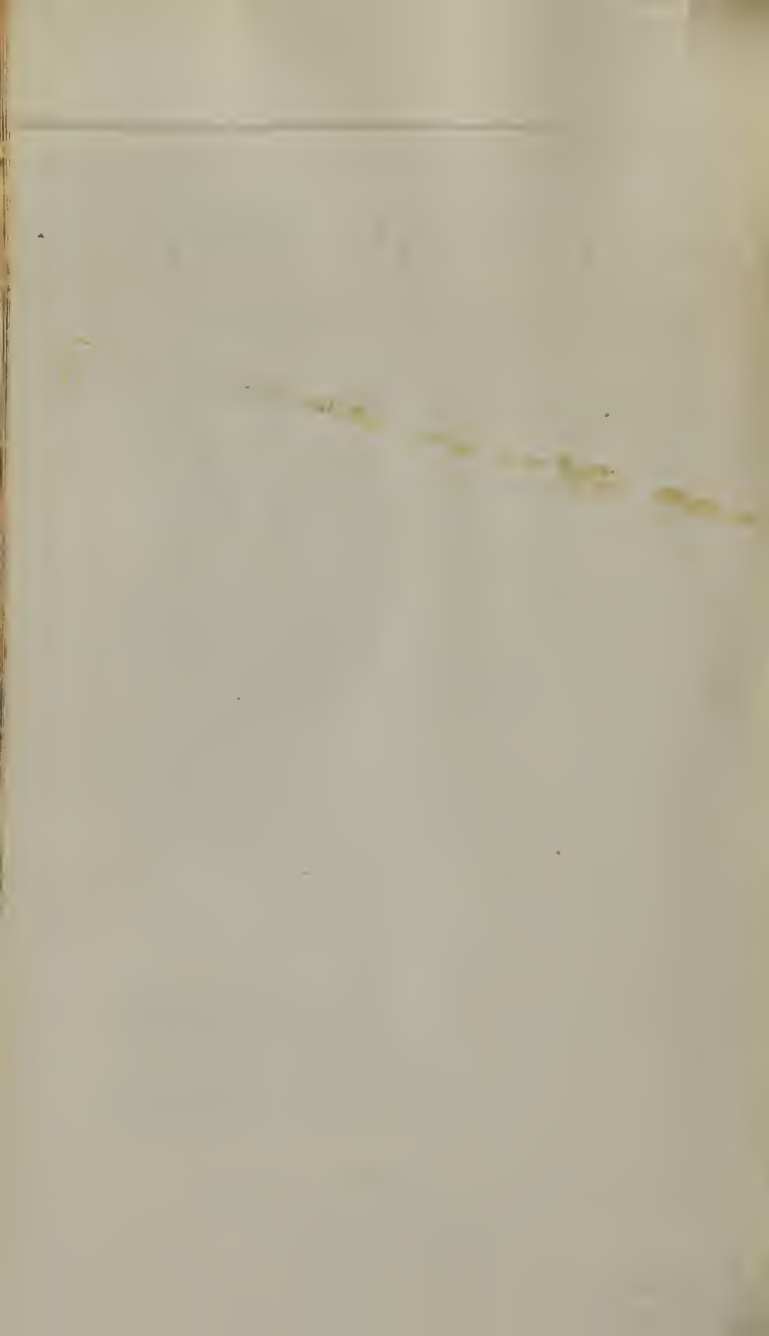
The facts connected with the case were communicated by Acting Assistant Surgeon G. K. Smith, under whose direction the treatment was conducted.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 1231. *Excised Head and Comminuted Upper Portion of Shaft of Left Humerus, with a Conoidal Musket Ball.*

Private Jennison L. Erving, Co. L, 8th Illinois Cavalry, was wounded at Rixeyville, Va., on November 8th, 1863, by a conoidal musket ball. He was on horseback, with his left side towards the enemy, when the projectile struck the outer border of the left scapula, and, glancing upwards, shattered the neck and upper portion of the shaft of the left humerus. The humerus was badly comminuted, and its head was displaced from the glenoid cavity, but there was no lesion of important vessels or nerves.

Primary excision was performed by Surgeon E. W. H. Peck, 45th Indiana Vols., through a single straight incision. The head and fragments of four inches of the shaft were removed. The wound was closed by sutures and adhesive strips. The following day the patient rode twenty-two miles in an ambulance to the Cavalry Corps Hospital, and was transferred a few days subsequently to Columbian College Hospital, at Washington. In the middle of January, 1864, an abscess formed in the deltoid region, and a small fragment of necrosed bone was eliminated. By the end of January the wound was entirely healed.

On March 25th, 1864, the hospital report states that Erving could slightly flex the left fore-arm, and that the power of pronation and supination and of moving the hand was perfect.

Erving was discharged from service, September 26th, 1864. On June 25th, 1865, he visited the Army Medical Museum, and a photograph was then taken to accompany the specimen. He had little motion at the left shoulder-joint; but the movements of the fore-arm were unimpaired.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.



Specimen 57

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

SPECIMEN No. 565. *Upper extremity of Left Femur showing a Perforation between the Trochanters by a Conoidal Musket Ball.*

Captain James M. L——, Co. I, 20th Indiana Vols., was admitted into Columbia College Hospital, at Washington, June 29th, 1862, with two gunshot wounds, received a day or two previously, in one of the battles before Richmond.

The first wound was through the lumbar muscles of the left side. After receiving it the officer fell, and while lying on the field, he was again struck by an elongated musket ball which entered on the outer side of the left thigh, a little below the great trochanters, and, passing upwards and inwards, lodged.

A finger could be readily passed into the perforation in the femur, but the ball could not be reached. Three formal attempts to ascertain its position and accomplish its removal were made unsuccessfully.

The patient died from exhaustion on August 19th, 1862. At the autopsy, the ball was found in the position in which it is fixed in the specimen, the apex pointing to the wound of entrance. The near proximity of the ball had not induced any disease of the hip-joint.

The specimen and the facts relating to it were contributed by Assistant Surgeon William M. Notson, U. S. Army.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.

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Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 58.—*Loss of Corporal Bemis, thrice severely wounded in Three Battles.*

Private Edson D. Bemis, Co. K, 12th Massachusetts Vols., was wounded at Antietam by a musket ball, which fractured the shaft of his left humerus. The fracture united kindly, with very slight angular displacement and a space of an inch baring in.

Promoted to be corporal, Bemis received May 6th, 1864, at the battle of the Wilderness, a wound from a musket ball in the right iliac fossa. He was treated in the Chester Hospital, near Philadelphia. There was extensive sloughing about the wound, but it ultimately healed entirely, leaving a large cicatrix parallel with Poupart's ligament. Eight months after the injury, Bemis returned to duty with his regiment.

On February 5th, 1865, Corporal Bemis was again severely wounded at the engagement at Hatcher's Run, near Petersburg, Virginia. A musket ball fractured the squamous portion of the left temporal bone, and the patient states that the surgeons found it lodged in the substance of the left cerebral hemisphere, whence it was extracted, together with several fragments of bone, on February 8th, 1865.

The photograph was taken July 15th, 1865. The wound in the head was then nearly healed. There was a slight discharge of healthy pus from one point. The pulsations of the brain could be felt and seen under the integument. The mental and sensory faculties were unimpaired. The Corporal had been discharged from service, and recommended for a pension.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Brig. Lt., Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 59.—*Resection of Portions of the Metacarpus and Carpus, and of the Lower Extremity of the Ulna.*

Major C. W. Hobbs, 7th New York Heavy Artillery, was wounded at Cold Harbor, Virginia, June 3d, 1864, by three musket balls. One inflicted a flesh wound of the left thigh, passing across the popliteal space, close to the hamstring tendons. A second fractured the third and fourth metacarpal bones of the left hand, and made its exit near the wrist. The third entered the left hand between the distal extremities of the first and second metacarpals, comminuted the second and third metacarpals, the unciform and cuneiform bones, and the lower extremity of the ulna, and made its exit on the outer side of the forearm.

Primary excision was performed by Surgeon J. E. Poinfret, 7th New York Heavy Artillery. Two inches of the distal extremity of the ulna were removed, with the fractured bones of the carpus and metacarpus, and three outer fingers. The case progressed without any untoward complication, and recovery was complete in two months.

The photograph was taken July 7th, 1865. The remaining portion of the radio-carpal articulation was not ankylosed, and the movements of the thumb and fore-finger were unimpaired.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Be't Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1612. *Body of the Sphenoid Bone transpierced by the Point of a Sword, which has fractured the Posterior Clinoid Processes.*

Private John Higgins, *et. 25.* of the guard of Lovell General Hospital, Portsmouth Grove, Rhode Island, was confined for four hours, on the night of February 28th, 1863, in a strong-box, as a punishment for bringing liquor into camp. When released, he rushed upon the sergeant of the guard and struck him; whereupon the sergeant drew his sword (regulation pattern for non-commissioned officers of infantry), and stepping backwards a pace, put himself *en garde*. In this position, the prisoner made a second assault, but the ground being uneven and the grass covered by frost, he slipped and fell heavily on the point of the sword and to the ground.

When raised, the assailant's face was bleeding, and he was insensible. He was examined by the medical officer of the day, who found a slight cut on the ala of the nose, and ascribed the insensibility to intoxication and to the fall on the head. The prisoner was removed to the guard house, and there spent the night. In the morning, he was found to be still unconscious, to be breathing stertorously, moaning occasionally, and to have a slow full pulse and dilated pupils. He was removed to a ward in the hospital, and the remedies commonly employed in cases of apoplexy were prescribed. There was no return of consciousness, and the case terminated fatally on March 2d, thirty-one hours after the injury.

At the autopsy, it was found that the sword had entered at the right nostril, pierced the right superior turbinated bone and the body of the sphenoid, and caused a transverse fracture at the base of the posterior clinoid processes. A slight indentation marked where its point had impinged upon the right clinoid process. There was much extravasated blood in the cranial cavity, especially over the surface of the right hemisphere.

A minute account of the case was compiled by Acting Assistant Surgeon Seyffarth, U. S. A., and forwarded, with the specimen, by Surgeon L. A. Edwards, U. S. A., in charge of the Lovell Hospital.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 61. *Thigh Stump from which a Cylindrical Sequestrum has been extracted.*

Private William Cotter, æt. 27, Co. E, 9th New Hampshire Vols., underwent primary amputation of the right thigh at the lower part of the middle third, on account of gunshot fracture of the lower third of the femur, at Petersburg, Va., July 30th, 1864. The operator made a long posterior skin flap, which was turned up and attached anteriorly by sutures.

On August 3d, 1864, the patient was admitted to Douglas Hospital, at Washington. The stump was swollen from the retention of pus by the bag-like flap. Two sutures were removed and an incision was made in the dependent portion of the flap, and the stump was poulticed.

On August 13th, the swelling was much reduced and the constitutional irritation had greatly abated; the ligature from the femoral artery came away on that day.

On November 29th, 1864, the wound was cicatrized with the exception of a small fistulous orifice, through which dead bone had been felt for two months previously. An incision was made here and a cylindrical sequestrum, nearly six inches long, was extracted. (Specimen 252, A. M. M.). The sequestrum was surrounded, as usual in such cases, by a thick shell of new bone. Within it, near the middle, was a beautiful transparent osseous flake.

The patient was photographed, July 16th, 1865. The fistula in the stump had not entirely healed. Various stimulating injections had been unsuccessfully employed. The patient's general health was excellent.

The facts of the case were communicated by Assistant Surgeon Win. F. Norris, U. S. A.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1826.—PHOTOGRAPHIC SERIES, No. 62. *(Unshaded)*

Fracture of the Head of the Left Humerus, successfully treated without Excision or Amputation.

Private James Keenan, aged 37 years, Co. H, 66th New York Vols., was wounded May 12th, 1864, at the battle of Spottsylvania, by a musket ball that entered a little below and in front of the acromion process of the left scapula, and, passing inwards and downwards, comminuted the head of the humerus, and made its exit at the posterior fold of the axilla.

On May 28th, 1864, the patient arrived at Douglas Hospital, at Washington. The constitutional condition was satisfactory. The wounds were discharging pus mixed with synovia quite freely. A digital exploration indicated that the head of the humerus was almost pulverized; but that there were no considerable fissures extending into the diaphysis.

Upon consultation, it was decided to make a free incision into the joint to permit the removal of fragments and a free discharge from the wound. But the patient earnestly deprecated any operative interference, and, in obedience to his wishes, he was put to bed and allowed a generous diet: while, except to keep the arm at rest, to facilitate free discharge from the wounds, and to apply dressing of cold water, no local treatment was instituted.

Under these measures, the patient steadily improved. Fragments of necrosed bone occasionally came away. As convalescence progressed, passive motion of the joint was made whenever the wounds were dressed. On January 20th, 1865, the wounds were entirely healed. The patient had good use of his arm, and could perform most varieties of manual labor. The power of the deltoid was unimpaired, yet there was sufficient ankylosis to prevent the patient from putting his hand to his head, or raising his elbow to a level with the shoulder.

The result is certainly more satisfactory than the average result in excision of the head of the humerus.

The photograph was taken, July 31st, 1865. The history of the case was furnished by Assistant Surgeon Wm. F. Norris, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

1st Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1395.—PHOTOGRAPHIC SERIES, No. 63. *Recovery, without Amputation, after a Gunshot Wound through the Right Knee-joint.*

Private Peter Stick, Co. E, 116th Penn. Vols., et. 18, was wounded on May 12th, 1864, at the battle of Spottsylvania, and was admitted, on May 18th, to Douglas Hospital, in Washington. The projectile, which was probably a conoidal musket ball, had entered at the inner edge of the right patella, passed directly through the articulation, and made its exit near the centre of the popliteal space. The inner condyle was slightly grooved; but the ball passed mainly through the intercondyloid notch. There was an abundant thin discharge of mingled pus and synovia. The joint was somewhat swollen, but the inflammatory symptoms and constitutional disturbance were moderate. The patient was of a delicate organization.

The treatment was limited to rest and water dressings.

On June 9th, there was swelling and pain in the joint and a febrile reaction. Poultices were applied to the wound of exit, the anterior wound having healed. In a few days the bad symptoms abated.

In the latter part of August, 1864, the patient began to walk about on crutches, the leg being flexed at an angle of 135° with the thigh. In October, the limb was banded to a moveable angular splint, and the flexion was gradually reduced. Almost complete extension was obtained without exciting inflammation in the joint. The patient kept his bed during this period of the treatment.

For the following eight months, nothing of special interest transpired. There were several attacks of inflammation of the joint; but they were moderate in degree and were readily subdued by poulticing. On such occasions, abscesses sometimes formed in the thigh.

For the greater part of the time, the patient's appetite was fair, his bowels regular, his sleep refreshing. When inflammatory mischief was threatened, poultices, hot fomentations with flannel covered with oiled silk, and applications of tincture of iodine were employed. At other times, cold water dressings with $\frac{1}{2}$ charpie to absorb the discharge were used. Ice was never applied.

The photograph was taken, July 9th, and the patient was discharged from service and the hospital, July 14th, 1865. The posterior wound was still open, and a probe could be introduced through it for three inches. There was a large deposit of new bone. The patella was firmly ankylosed to the femur.

The facts of the case were compiled by Acting Assistant Surgeon Henry Gibbons, Jr., U. S. A., and forwarded by Assistant Surgeon Wm. F. Norris, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, NO. 64.—*Recovery, without Amputation,
after Gunshot Fracture of the Right Patella.*

Private G. W. Warrington, Co. C. 110th Ohio Vols., was wounded on April 2nd, 1865, at Petersburg, Virginia, by a round ball from a spherical case shell. The ball entered the centre of the patella, and, producing a stellate fracture of that bone, passed downwards, backwards, and inwards, and was cut out, on the field, one and a half inches below the tuberosity of the tibia.

On April 12th, 1865, the patient was admitted into Judiciary Square Hospital, at Washington. There was no pain in the knee-joint, and but little swelling. The treatment had been limited to dressings of cold water, which were continued for a few days, and followed by applications of ice.

The patient was removed to Douglas Hospital, June 19th, 1865, when three small necrosed fragments of the patella were removed.

The photograph of the case was taken, July 9th, 1865. The wounds had healed, and the patient walked about with a cane. There was at no time any indication of the formation of pus within the joint.

The facts of the case were communicated by Acting Assistant Surgeon H. S. Colton, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 563.—PHOTOGRAPHIC SERIES NO. 65. *Recovery after a Penetrating Wound of the Abdomen with Fracture of the Left Os Ilium Inferius.*

Private John B. C., Co. F, 76th N. Y. Vols., aged 45 years, was admitted into Douglas Hospital, Washington, May 18th, 1864, with a penetrating gunshot wound of the abdomen, inflicted in May 1st, at the Battle of the Wilderness.

A bullet entered the abdomen at the junction of the left twelfth rib with its cartilage, passing downward, backward, and outwards, through the ilium, lodged in the soft parts, and was removed by incision.

On admission the wound copiously discharged a thin translucent fluid, resembling chyle, which evidently came from the small intestine, for, among other reasons, it had a peculiar odor. Were further proof of the origin of the discharge required, it would be afforded by the fact that three ascarides lumbricoides escaped from the wound during the second three weeks of the treatment. The discharge for nine days prior to admission according to the patient, similar to that above noted.

The patient was kept perfectly quiet, in a recumbent posture. The discharge from the wound was collected, large masses of charpie being used to absorb it. For several weeks he subsisted principally of beef milk, milk punch, and beef tea. His appetite was poor, and he was disturbed by eructations. But there was no abdominal pain or tenderness, and, except throughout the treatment, was there any symptom of peritoneal inflammation. On May 22d—sugar and water—pneuma was administered without result. Nothing more was supplied in this direction, as the patient was doing well and nature seemed competent to meet every indication.

On June 3d, the discharge had entirely ceased, and the patient was much improved. On June 10th, he had a large urticarial eruption, the first since May 9th. On May 11th, with the eruption, he had another large defecation. From this time he improved rapidly.

On August 1st, a fragment of human bone, that could be recognized as a portion of the ilium, was removed from the wound in the gluteal region. About the same period bits of fecal matter were taken from fistulous orifices opening near the wound of entrance. Patients were relieved of constipation, and flatulence was troublesome. Early in October the patient had a dysentery, which lasted one week.

On May 14th, 1865, a round-shaped bit of bone escaped from the wound of entrance. On May 20th, the wound was entirely healed.

On June 16th, the photograph was taken. The patient was in good health, suffering only from occasional attacks of flatulence.

Details of this case were drawn up by Acting Assistant Surgeon Henry Gibbon, Jr., and were accepted by Assistant Surgeon A. M. F. Norr's U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Brig. Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 66. *Successful Excision of the Head of the Left Humerus.*

Private Charles Ross, Co. H. 90th Penn. Vols., aged 19 years, was admitted to Douglas Hospital, at Washington, on May 14th, 1864, with a comminuted gun-shot fracture of the head of the left humerus, received on May 10th, in action near Spottsylvania, Va.

The head of the humerus was completely shattered by a musket ball; but there was no injury of the shaft. There was much irritative fever, and copious suppuration. It was determined to excise the head of the humerus, and the operation was done, under ether, through a single vertical incision, by Assistant Surgeon Wm. Thomson, U. S. A. There was little loss of blood, and the patient promptly re-acted and then steadily improved.

By the 20th of September, 1864, the wounds had healed completely. The patient had a very useful arm. The elbow-joint, forearm and hand were as good as on the uninjured side.

The photograph was taken July 19th, 1865. At that date, the patient had not acquired much power over the movements of his arm; but he could raise his hand to his mouth, and the result compared very favorably with the average results in excisions of the head of the humerus. He was able to do good service as an attendant in the kitchen and hospital from November, 1864, till August 21st, 1865, when he was discharged from service. The excised head of the humerus is numbered: Specimen 4278, A. M. M.

The history of the case was compiled by Assistant Surgeon Wm. F. Norris, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 67. *Partly Consolidated Gunshot Fracture of the Trochanters of the Left Femur.*

Private Isaac Wetzel, Co. I 184th Pennsylvania Vols., aged 21 years, was wounded on October 3d, 1864, near Petersburg, Va, by a conoidal musket ball, which entered the anterior portion of the left thigh, at a level with the trochanters, and, having fractured the femur very high up, made its exit through the lesser trochanter.

The patient was taken to Washington, and was treated at Armory Square Hospital, by Hodgkin's apparatus, without extension.

On June 1st, 1865, the fracture had apparently firmly united, with three and a quarter inches shortening. The limb was everted, and the knee-joint stiffened by false ankylosis.

On July 6th, 1865, the patient was conveyed in an ambulance to the Army Medical Museum, and the limb was photographed. The wounds were still open, and discharged an ounce of pus daily. The patient's general health was satisfactory. He was still unable to walk, even with the aid of crutches.

The particulars of the case were furnished by Acting Assistant Surgeon H. A. Robbins, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 68. *United Gunshot Fracture of the Middle Third of the Right Femur.*

Private John H. Green, Co. E. 14th New York Heavy Artillery, aged 47 years, was wounded, June 1st, 1864, near Bermuda Hundreds, Va., by conoidal musket ball, which passed through his right thigh, comminuting the shaft of the femur.

He was conveyed to Washington, and was admitted to Armory Square Hospital, June 15th, 1864. He was treated by Hodgen's apparatus, without extension.

During March, 1865, several fragments of bone were extracted without closing the wound. One of them was two-and-a-half inches in length.

In June, 1865, the fracture was found to be united, with five and a half inches shortening, much angular deformity, and inversion of the foot. There was little motion at the knee-joint. The wounds were still open, and discharged about an ounce of laudable pus, on the average, in twenty-four hours.

On July 6th, 1865, the photograph was taken, and the following day the patient was transferred to the U. S. A. General Hospital at Albany, New York. His general health was excellent.

The particulars of the case were furnished by Acting Assistant Surgeon H. A. Robbins, U. S. A.

Photographed at the Army Medical Museum

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Brig. Li. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 69. *United Gunshot Fracture of the Upper Third of the Right Femur.*

Private J. E. Norwood, Co. H. 9th Georgia (Rebel) Regiment, was wounded on February 14th, 1865, near Lee's Mills, Va., by a conoidal musket ball, which entered the right thigh opposite the trochanter minor, and, passing forwards and downwards, fractured the femur, and made its exit anteriorly at the junction of the middle with the upper third of the thigh.

Norwood was captured, and conveyed to Washington, and admitted to Armory Square Hospital, on March 23d, 1865. There was not much constitutional disturbance, and the suppuration was moderate. Buck's method of treatment was adopted. The case progressed without any unfavorable complications, and, by June 25th, there was firm union of the fracture, and the patient was enabled to walk about on crutches.

On July 15th, 1865, the patient was photographed at the Army Medical Museum. The fracture was firmly consolidated, with little more than one inch shortening. The anterior wound was still open, and discharged a little healthy pus. The general condition of the patient was encouraging.

The facts of the case were communicated by Acting Assistant Surgeon Geo. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Brigadier General and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 70. *Model of a Modification of the Ordinary Two-horse Ambulance employed in the U. S. Army.*

Several improvements in the two-horse ambulance, sometimes known as the "Wheeling Ambulance," which has been so generally employed in our armies during the late war, were originated by Brevet Col. C. H. Tompkins, U. S. A., and Surgeon T. H. Hewson, U. S. V., and were embodied in a model which was presented to the Army Medical Museum by Col. Tompkins.

The improvements consisted chiefly in the arrangement of the springs. It is believed that no ambulances of this pattern have been constructed.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES No. 71. *United Gunshot Fracture of the Shaft of the Right Femur.*

Private Henry Shelter, Co. D, 7th Wisconsin Vols., was wounded by conoidal musket ball, March 31st, 1865, at Stony Creek, Virginia. The ball entered the external portion of the right thigh, a little below the middle, fractured the femur, and lodged.

Shelter was admitted to Armory Square Hospital, at Washington, April 5th, 1865. On April 19th, the ball was detected beneath the integument, on the inner part of the thigh, two inches below the perineum, and was removed. The limb was then bandaged, supported by sand-bags, and extended by weight and pulley. The constitutional disturbance was slight, and the discharge from the wound moderate. A few necrosed fragments of bone were removed.

On July 5th, the patient was able to ride in the invalid chair, and, a few days subsequently, he walked on crutches. On July 16th, the photograph was taken. There was still a slight discharge from the wound of entrance. The injured limb was shortened one inch. The patient's general health was excellent. He was about to be transferred to Madison, Wisconsin.

The facts were communicated by Acting Assistant Surgeon George K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Prof. Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 2697 — PHOTOGRAPHIC SERIES No. 72. *United States Army, 1865. Fracture of the Middle Third of the Left Femur.*

Private Anson Ride, Co. B, 121st New York Vols., was wounded by a musket ball on April 2d, 1865, in an engagement on the Southern Railroad, near Petersburg, Va. The ball struck the left thigh, about six inches above the patella, fractured the shaft of the femur, and lodged.

He was transferred from the Base Hospital, at City Point, to Washington, as soon as practicable, and was admitted to Armory Square Hospital, on April 12th. There was but slight constitutional disturbance, and the discharge from the wound was very moderate in quantity. The injured limb was four inches in length and a quarter. The position of the ball could not be ascertained. The patient was treated on Dr. Gurdon Buck's plan.

On June 4th, the wound was healed, but bony union was still incomplete. Extension by means of weights was continued.

On July 8th, the femur was firmly consolidated, and the patient was allowed to rise and walk about on crutches. On July 25th, 1865, he was taken to the Army Medical Museum, and photographed. The injured limb was shorter now than at first. The general health was good.

The case was treated by Acting Assistant Surgeon George K. Smith, who communicated the facts relating to it.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Prof. Lt. Col. and Surg. U. S. A. Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 2461.—PHOTOGRAPHIC SERIES, NO. 73. *United
 gunshot Fracture of the Shaft of the Right Femur.*

Captain David A. Smith, Co. I 20th Mass. Vols., was wounded on
January 5th, 1865, at Hatchers Run, Va., by a conoidal musket ball,
which entered the middle of the external surface of the right thigh, frac-
tured the bone, and made its exit from the inner and posterior aspect of
the thigh.

He was admitted into the Second Corps Hospital, and was treated by
Dr. F. H. Smith. Extension was made by a weight of six-
ty pounds.

He was then removed to Army Surgeon Hospital, at Washington, March
18th, 1865. The fracture gradually united with four inches shortening,
and very considerable angular deformity. On April 30th, the patient fell
on his side, and fractured the imperfectly consolidated callus. The
opportunity was embraced to straighten the limb, and to employ as much
extension as the patient could bear.

On July 25th, 1865, the photograph was taken. The man was dis-
charged from service the same day. The fracture had firmly united, with
one inch shortening. There was still a small fistula and a slight
irregular swelling. The general health was remarkably good.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

A. M. M.
Spec. 3597.

Vol. II, p. 24

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 1424.—PHOTOGRAPHIC SERIES, No. 74. *Aorta, Cava, and Branches, showing a Ligation of the Common Iliac Artery.*

Private George Clark, Co. I, 4th New Jersey Vols., was admitted into the Warrenton Field General Hospital, in August, 1863, on account of a swelling of the left thigh, which was supposed to be due either to a malignant tumour or to an aneurism, resulting from a wound of the vessel, eight years previously, by the blade of a pocket-knife.

He was transferred to Washington, and thence to the Ward Hospital at Newark, New Jersey, where he was admitted on October 13th, 1863.

On February 6th, 1864, the left external iliac was tied, by Acting Assistant Surgeon J. B. Cutter, U. S. A., by direction of Surgeon George Taylor, U. S. A. After the operation the tumour diminished in size, and for several weeks a cure was anticipated: subsequently, the swelling gradually returned, and in September, 1864, it was greater than before the operation.

On September 17th, 1864, a ligature was placed on the trunk of the common iliac. The patient survived the operation five days and died of peritonitis.

The autopsy showed that the disease was aneurismal varix, the communication between the femoral artery and the enlarged vein being at the lower part of Scarpa's triangle. The femoral vessels were not preserved.

The injected specimen was forwarded by Assistant Surgeon Clinton Wagner, U. S. A., and is numbered 3597, A. M. M. A detailed account of the first operation is published in the *American Journal of the Medical Sciences*, Vol. XLVIII, page 36.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 484.—PHOTOGRAPHIC SERIES No. 75. *Successful Amputation at the Left Ankle, by the Method of Pirogoff.*

Lieut. W. C. Weeks, Co. I, 5th Michigan Cavalry, was wounded April 1st, 1865, at the battle of Five Forks, by a conoidal musket ball which passed through his left ankle joint. He was immediately carried to the hospital at City Point, and amputation at the ankle was performed, on the same day, by Surgeon St. Clair, 5th Michigan Cavalry. The articulating surfaces of the tibia and calcaneum were removed, and the cut surfaces were brought into apposition.

On April 16th, 1865, the patient was transferred to Armory Square Hospital, at Washington. On admission, he was in a feeble condition. An erysipelatous blush extended above the knee on the injured side; an abscess had formed in the lower part of the leg; and no union of the flap had taken place.

With the employment of stimulants and nutritious diet with emollient applications to the limb, there was a gradual improvement until April 28th, 1865, when symptoms of pyæmic infection supervened. Rapidly recurring chills, an icteroid coloration of the skin and conjunctiva, anorexia, and a frequent feeble pulse suggested the gravest prognosis. Energetic treatment was adopted. An ounce of brandy was given every two hours, and quinia, sesquichloride of iron and beef tea were freely administered. On May 6th, the grave symptoms began to subside, and by the end of the month, the patient was fairly convalescent.

On June 26th, the patient was pronounced well. The os calcis had firmly united to the tibia, and there was a good solid stump. A cast in plaster was taken of it, A. M. M., Spec. 2298, and a few days subsequently, a photograph.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Brig. Gen. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 4279.—PHOTOGRAPHIC SERIES, No. 76. *United Gunshot Fracture of the Upper Third of the Right Femur.*

Corporal Thomas Crossley, Co. E, 39th New York Vol., was wounded March 25th, 1865, in the assault on Fort Steadman, near Petersburg, Va., by a musket ball, that fractured the upper third of the right femur.

The patient was admitted to Armory Square Hospital, at Washington, April 1st. He progressed very favorably, and, by mid-summer, the fracture was firmly united with slight deformity, and only one inch shortening.

The photograph was taken July 20th, and on July 25th, 1865, Crossley was discharged from service.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 231.—PHOTOGRAPHIC SERIES, No. 77. *United Gunshot Fracture of the Middle Third of the Right Femur.*

Private John W. Hutchinson, Co. G, First Maine Veteran Vols., was wounded at the battle of the Wilderness, May 5th, 1864, and admitted into Armory Square Hospital, on May 26th, with a comminuted gunshot fracture of the middle third of the right femur.

The photograph was taken July 20th, 1865. There was still a slight discharge; but the fracture was firmly united, with two inches shortening, and the patient's general health was excellent.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Brig. Lieut. Col. and Surg. U. S. A., Creator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 375.—PHOTOGRAPHIC SERIES, No. 78. *Recovery, without Amputation, after a Gunshot Fracture of the Head of the Left Tibia, involving the Knee-joint.*

Lieut. Thomas W. Robertson, 79th New York Vols., was wounded, on June 16th, 1862, in the assault on the works on James Island, South Carolina, by a musket ball, which struck the outer side of the head of the tibia, and passed upwards and lodged, as was believed, in the intercondyloid notch of the femur, or somewhere about the knee-joint.

Amputation of the thigh was advised but refused by the patient. The limb was then placed in an easy position and cold water dressings were applied.

On June 28th, the patient was sent to New York. On July 6th, there was profuse hæmorrhage from the anterior tibial artery. On July 8th, the femoral artery was tied by Professor Willard Parker. At this date, the knee-joint was excessively swollen, and there was free suppuration from the wound.

After a very protracted confinement, the patient ultimately recovered, with complete ankylosis of the knee-joint, the straight position of the limb being preserved.

Lieut. Robertson was transferred to the Veteran Reserve Corps, on February 23th, 1864, and was on duty at Emory Hospital, at Washington, in 1865. On July 18th, 1865, the photograph was taken.

The facts of the case were communicated by Surgeon N. R. Mosely, U. S. Vols., who reported that Professor Parker and the other surgical advisers of Lieut. Robertson, entertained no doubt that the knee-joint was primarily involved in this case. The exact location of the ball was never ascertained.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Brig. Lieut. Col. and Surg. U. S. V., Curator A. M. M.

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Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 3400.—PHOTOGRAPHIC SERIES, No. 79. *Shell Wound of the Face, with great Destruction of the Soft Parts.*

Private Joseph Harvey, Co. C, 149th New York Vols., was wounded at the battle of Chancellorsville, May 3d, 1863, by a fragment of shell. The right eye was destroyed, the right superior maxilla was fractured, a fragment was chipped off the lower jaw, and the right cheek was frightfully lacerated.

The patient fell into the hands of the enemy, and remained a prisoner eleven days.

In the middle of June, 1863, he was admitted into Mansion House Hospital at Alexandria. In August, portions of exfoliated bone were removed. A ferrotype, representing the appearance of the wound at this date, was forwarded to the Army Medical Museum.

On May 7th, 1865, Harvey was discharged from service on account of physical disability. He was subsequently employed as a night-watchman at the Commissary Hospital in Alexandria.

The photograph was taken June 32d, 1865. The loss of substance in the cheek was still unrepaired, and liquids and saliva escaped from it. There was slight deafness and partial facial paralysis on the right side.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 3153.—PHOTOGRAPHIC SERIES, No. 80. *United Gunshot Fracture of the Inferior Maxilla.*

Private Ferdinand Lauersdorf, Co. D, 6th Wisconsin Vols., aged 28 years, was wounded, on March 31st, 1865, in an engagement on the Southside Railway, near Petersburg, Virginia, by a fragment of shell which struck the body of the lower jaw, and tore away the entire anterior portion of the bone.

The photograph was taken July 14th, 1865. The fractured extremities of the jaw had united, and the wound had nearly healed. The movements of the jaw were very limited, but deglutition was but slightly interfered with.

The patient had been discharged from service, and was on his way to his home in Watertown, Jefferson County, Wisconsin.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Major, U. S. Army, and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 84. *Recovery after a Perforating Gunshot Wound of the Abdomen producing Artificial Anus.*

Lieut. G. P. Deiehler, Co. I, 69th Pennsylvania Vols., aged 22 years, was wounded by a conoidal musket ball, at Hatcher's Run, Va., in March, 1865. The ball entered the right iliac region, and, passing through the ascending colon, made its exit a little to the left of the last dorsal vertebra.

The patient was taken to a field hospital, and from thence to Armory Square Hospital, at Washington, where he was admitted on April 1st, in an exhausted condition, with grave symptoms of peritonitis. There was a copious fecal discharge from both wounds. Appropriate dressings were applied, a fourth of a grain of sulphate of morphia was ordered to be given every second hour, and stimulants were directed.

On April 7th, sloughs separated from both wounds, and left a clean granulating surface. A large piece of sphacelated omentum was removed from the anterior wound.

The opiate treatment was continued till April 27th, when there was a fecal evacuation by the anus, for the first time after the injury.

On June 12th, the discharge from the wounds was very slight. The edges of the wounds were now refreshed and approximated by adhesive strips.

On August 10th, the anterior wound was firmly healed. There was a small fistulous sinus at the posterior wound, discharging pus scantily. On this day the photograph was taken, and the patient left the hospital for his home in excellent general health.

The particulars of the case were communicated by Acting Assistant Surgeon Charles A. Searle, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Be't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 82.—NEGATIVE. No. 4280. *Necrosis of the Shaft of the Left Tibia, resulting from a Gunshot Injury.*

Private Henry Rall, Co. D, 4th New York Heavy Artillery, aged 22 years, was wounded at Old Church, Va., May 30th, 1864, by a musket ball, which struck the spine of the left tibia, four inches below the knee, and denuded the bone of its periosteum.

On admission at Stanton Hospital, in Washington, the injured limb was found to be much swollen and inflamed. In July, free incisions evacuated a large collection of pus and revealed the existence of extensive necrosis of the shaft of the tibia.

In the spring of 1865, the sequestrum was found to be detached and moveable, and, on March 14th, an operation was performed for its removal, a sufficient aperture being chiseled in the involucrum. This very large sequestrum is numbered 4337 in the Museum Collection.

On June 6th, 1865, Rall was discharged from service on a certificate of physical disability. The wound was not entirely healed; but the patient could walk with ease and comfort.

In July the photograph was taken. Rall was at this time engaged as a contract nurse at the Stanton General Hospital.

The particulars of the case were furnished by Surgeon Benjamin B. Wilson, U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Lieut. Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 2241.—PHOTOGRAPHIC SERIES, No. 83. *United
Gunshot Fracture of Middle Third of Left Femur.*

Private George Bauer, Co. C, 15th New York Heavy Artillery, was wounded on April 1st, 1865, near Hatcher's Run, Va., by a conoidal musket ball, which entered the external aspect of the left thigh at the junction of the upper and middle thirds, fractured the femur, and emerged on the opposite side an inch lower than the point of entrance.

On admission at Armory Square Hospital, April 4th, 1865, he was treated by Buck's apparatus, with a weight of eleven pounds. On June 23d, there was firm union of the fracture, though the wounds still discharged freely.

An August 10th, the photograph was taken. The wounds had nearly healed, and the discharge was very scanty. The limb was shortened one inch without other deformity. The patient walked about comfortably on crutches. On August 17th, he was transferred to Douglas Hospital.

The facts of the case were communicated by Acting Assistant Surgeon G. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 4150.—PHOTOGRAPHIC SERIES No. 84. *United Gunshot Fracture of the Shaft of the Right Femur*

Sergeant William Brown (Co. H, 69th Penn., Vols.), aged 24 years, a man of vigorous constitution, was wounded at Hatcher's Run, Va. March 25th, 1865, by a conoidal musket ball that entered the posterior aspect of the right thigh, two inches below the level of the trochanter margin, fractured the femur, and made its exit a little outside of the femoral vessels, four inches below Poupart's ligament.

The patient was conveyed to Armory Square Hospital, at Washington, where, on April 4th, the anterior wound was enlarged, and five large fragments of bone were removed, the patient being under the influence of chloroform. The fragments are numbered, A. M. M., Specimen 4143.

The case progressed very favorably, and on August 7th, 1865, the femur was found to be firmly united, with three inches shortening. At this date the photograph was taken, the patient being ordered to be transferred to the Mower Hospital at Philadelphia. There was still a slight purulent discharge.

The history of the case was communicated by Acting Assistant Surgeon George K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Brig. Lt. Col. and Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 2345.—PHOTOGRAPHIC SERIES, No. 85. *Simple Fracture of the Middle Third of the Left Femur, United without Deformity.*

Lieut. A. W. Searleswood, 10th Indiana Cavalry, was thrown from his horse at Black and White Station, Va., on April 28th, 1865, and the middle of his left femur was fractured.

He was admitted to Armory Square Hospital, on May 7th, and was treated by Buck's method of extension by a weight and pulley, until June 7th, a dextrine bandage was then substituted. In the latter part of June, the patient began to walk about with the aid of crutches.

The photograph was taken early in August, 1865. The fracture was then firmly consolidated without deformity, and with very slight shortening. The case was selected as an interesting illustration of a successful result in a simple fracture of the femur.

The facts were communicated by Acting Assistant Surgeon C. B. Porter, by whom the treatment was conducted.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 809.—PHOTOGRAPHIC SERIES, No. 86. *Left Scapula, showing a Gunshot Fracture nearly parallel with the Spine of the Scapula, with two Fragments of a Conoidal Musket Ball.*

Private William Fuller, Co. F, 18th Massachusetts Vols., aged 30 years, was wounded at the second battle of Bull Run, August 30th, 1862, by a conoidal musket ball, which entered to the left of the spinal column, and passing outwards, traversed the body of the scapula and the muscles of the upper part of the arm.

The patient was conveyed to Union Chapel Hospital at Alexandria on the 3d, and again on the 5th of September, misshapen pieces of ball and a few fragments of bone were extracted through an incision on the outer edge of the scapula.

On September 19th, symptoms of purulent infection were manifested. An active treatment by stimulants, quinia, iron, and ammonia was instituted, but unavailingly, and on September 25th, 1862, the case terminated fatally.

At the autopsy, a large collection of extravasated blood was found beneath the scapula and between the muscles of the shoulder. There was extensive serous effusion in the left pleural cavity, and numerous metastatic foci in both lungs.

The scapula is numbered: *Specimen 188*, in the Museum Collection.

Full notes of the case were forwarded by Acting Assistant Surgeon W. H. Butler, U. S. A.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Engraver, and Supr. U. S. F. Collection.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1586.—PHOTOGRAPHIC SERIES, No. 87. *Button of Bone removed by the Trophine on account of a Deformed Fracture of the Cranium, produced by a Blow from a Stone.*

Private John Rughts, Co. H. 2nd Michigan Vols., aged 41 years, was wounded in a street fight in Washington, on July 17th, 1865, and was admitted into Armory Square Hospital on the afternoon of the following day.

He had four scalp wounds, produced by stone thrown at him. One was over the right frontal eminence and penetrated as far as the aponeurosis of the occipito-frontalis; a second was at the middle of the coronal suture and slightly denuded the pericranium, but no injury of the bone could be detected; a third, in the temporal region, involved the integument only; while the fourth, over the right parietal protuberance, presented a very slight depression of the outer table of the skull, of an irregular shape and of an average diameter of a third of an inch. The patient was conscious, his pulse somewhat accelerated, his voice tremulous, his pupils contracted. He had no nausea and little pain.

He was placed under the influence of ether, and the fracture was exposed by a crucial incision of the scalp. The crown of a large trophine was so applied as to surround the depressed fragment. The button of bone that was removed exhibited a depressed rectangular fragment of the vitreous plate, nearly an inch in length and half an inch in width. The dura mater was uninjured. No unfavorable symptoms followed the operation, and on August 24th, 1865, the patient was transferred to the U. S. General Hospital at Detroit, Michigan. The osseous specimen is numbered 1452, A. M. M., and was forwarded by the operator, Brevet Colonel D. W. Bliss, Surgeon U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN NO. 1516.—PHOTOGRAPHIC SERIES, No. 88. *Fragment of a Grenade encrusted with Calculous Matter, extracted from the Bladder by Lithotomy.*

Private Conrad Lotes, Co. A, 23d Indiana Vols., aged 32 years, was wounded at Vicksburg, Miss., June 25th, 1863, by a fragment of a hand grenade, which entered the right nates two inches outside of the end of the coccyx, and passed into the bladder, where it lodged. Urine passed by the wound immediately after its reception.

The patient was admitted into the General Hospital at Jefferson Barracks, Missouri, August 5th, 1863. His general health was much impaired. The urine passed mainly by the wound and was largely mixed with pus and blood. The treatment directed comprised warm fomentations, mild diuretic, stimulants and nutritious diet.

On February 20th, 1864 a catheter was with much difficulty passed by the urethra and the presence of a foreign body was ascertained. On March 19th, the general condition was improved; the wound was so far closed as to admit only a large sized probe. Attempts to pass a catheter to probe the wound caused chills and febrile irritation.

On April 2d, 1864, the lateral operation of lithotomy was performed by Surgeon John F. Randolph, U. S. A., the patient being anaesthetized by equal parts by bulk of chloroform and ether. A rectangular fragment of shell, largely encrusted with calcary phosphates, was extracted. It was two inches in length, seven-eighths of an inch in width and three-eighths of an inch in thickness. It weighed two ounces and five grains, troy.

On April 12th, the urine passed by the wound. On April 27th, the wound had healed, and the patient was soon afterwards restored to his ordinary condition of health.

A detailed report of the case is published in the American Journal of Medical Sciences, Vol. XLVIII, p. 271.

The encrusted fragment of shell is preserved in the collection of the Army Medical Museum, (Spec. 88). It weighs 898 grains, portions of the phosphatic deposit having crumbled away.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Lt. Col. and Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1364.—PHOTOGRAPHIC SERIES, No. 89. *United Gunshot Fracture of the Upper Third of the Right Femur.*

Lieut. James J. Reeder, Co. G, Holcomb's South Carolina (Rebel) Legion, 31 years of age, was wounded at Hatcher's Run, Va., March 29th, 1865, by a conoidal musket ball, which entered near the right external abdominal ring, and, passing downwards, backwards and outwards, made its exit behind the right trochanter major, having fractured the femur at the trochanters and injured the anterior crural nerve.

The patient was made prisoner, and was conveyed to the 5th Corps Hospital at City Point, and was treated with the injured limb on a double inclined plane till May 1st, when he was removed to Washington, and admitted to Armory Square Hospital, on May 2d. It was found that the fracture had united with an inch shortening. There was a large deposit of callus in the trochanteric region. Wound of entrance closed, slight discharge from wound of exit, inability to flex the thigh, and severe pain from passive motion.

On July 15th the patient was able to sit up. Passive motion of the thigh had been frequently insisted on. On August 15th, 1865, the photograph was taken. The patient was able to walk on crutches; but he had still but little control over the flexor muscles of the injured limb. The wounds seemed to be completely healed, and the fracture firmly consolidated.

The facts of the case were furnished by Acting Assistant Surgeon Geo. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1028.—PHOTOGRAPHIC SERIES. No. 90. *Gunshot Fracture of the Shaft of the Right Femur, united with great Shortening and Deformity.*

Private John Friedrich, Co. F, 127th New York Vols, aged 19 years, was wounded at Honey Hill, South Carolina, November 30th, 1864, by a round musket ball, which entered the internal surface of the right thigh about the middle, fractured the femur, and lodged under the skin opposite the point of entrance, whence it was removed by an incision.

The patient was conveyed to Hilton Head U. S. General Hospital, and was treated for one month with Smith's Anterior Splint, and, afterwards, for four weeks, by Hodggen's apparatus. The limb was then placed in a long fracture box, and so remained until May, 1865, when the patient was transferred to Armory Square Hospital, at Washington.

On admission at Armory Square, May 10th, 1865, the fracture was found to be united, with seven inches shortening, and marked lateral deformity. The knee-joint had but limited motion. The overlapping extremity of the upper fragment presented itself just above the outer condyle of the femur, and the skin was ulcerated at this point, and the end of the bone was exposed.

Two months subsequently the ulceration became phagedenic, and destroyed the skin and fascia over the exterior surface of the thigh. Bromine was applied. By the end of July, there was an healthy granulating surface.

The photograph was taken August 15th, 1865. The ulcer was rapidly cicatrizing, and the general health was good. The fracture was firmly consolidated, and the patient walked on crutches.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Be t Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 1676.—PHOTOGRAPHIC SERIES, No. 91. *Consolidated Gunshot Fracture of the Upper Third of the Left Femur.*

Captain David Lewis, Co. G, 8th Ohio Vols., aged 26 years, was wounded at the battle of the Wilderness, May 6th, 1864, by a musket ball, which entered the external part of the left thigh, about the junction of the upper with the middle third, fractured the femur, and emerged at the nates, two inches to the left of the anus.

He was conveyed to Fredericksburg, and was treated with a double inclined plane for three weeks. He was removed to Washington on May 26th, and was treated, in quarters, by Dr. G. K. Smith, Acting Assistant Surgeon, U. S. A., by Buck's method. There was little suppuration or constitutional disturbance, and, on July 9th, the fracture was so far united as to permit the patient to walk on crutches. On July 13th, Captain Lewis was mustered out of service on account of the expiration of his term. In October, the wounds had entirely healed, and soon afterwards the patient was able to walk on his limb.

On August 22d, 1865, the photograph was taken. The injured limb was shortened one and a half inches, but there was no other deformity. Captain Lewis was in excellent health. He walked without a cane and without limping, and was actively engaged in business in one of the bureaux of the Treasury Department.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 664.—PHOTOGRAPHIC SERIES, No. 92. *United
Gunshot Fracture of the Middle Third of the Left Femur.*

Private Jonathan Wallace, Co. F, 21st Georgia (Rebel) Regiment, was wounded in the assault on Fort Steadman in the intrenched lines before Petersburg, on March 25th, 1865.

A conoidal musket ball entered at the external lower portion of the left thigh, passed obliquely upwards and backwards, fractured the femur in the middle third, and made its exit posteriorly.

The patient was made a prisoner, and was treated in a field hospital of the 9th Corps, where several fragments of bone were extracted, until April 8th, when he was conveyed to Washington, and admitted into Armory Square Hospital, April 10th, 1865. The injured limb was here placed in Buck's apparatus, and extension was made by a weight of eleven pounds.

On August 15th, the photograph was taken. The limb was shortened three-fourths of an inch. There was a very slight purulent discharge from the posterior wound. The general health was good, and the fracture was apparently firmly consolidated. On August 17th, 1865, the patient was transferred to Douglas U. S. General Hospital.

The facts of the case were communicated by Acting Assistant Surgeon G. K. Smith, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SPECIMEN No. 4293.—PHOTOGRAPHIC SERIES, No. 93. *Recovery after a Penetrating Gunshot Wound of the Abdomen with Perforation of the Left Ilium.*

Major H. A. Barnum, 12th New York Vols., was wounded at Malvern Hill, July 1st, 1862, by a conical musket ball, which entered midway between the umbilicus and the anterior superior spinous process of the left ilium, passed through the middle of the ilium, and emerged posteriorly.

The wound was regarded as fatal and the patient was left in a field hospital.

On July 2d, he was captured and was taken to Libby Prison, a distance of eighteen miles, in an express wagon. On July 17th, he was taken to Aikin's Landing, in an ambulance, a distance of seventeen miles, and exchanged. He was conveyed by water to Albany, and thence by rail to Syracuse, New York. At no time were any symptoms of peritonitis manifested.

On October 1st, Major Barnum went to Albany, where Dr. March dilated the anterior wound by an incision, and extracted several fragments of the ilium, and directed that a tent should be worn.

Promoted to the command of the 149th New York Vols., Colonel Barnum took the field in January, 1863. He wore the tent about a month, when the anterior wound healed. About the middle of March, a large abscess formed and evacuated itself at the site of the anterior wound. In April, Dr. March again cut down to the ilium, and introduced a tent. No loose fragments of bone were found. The Colonel resumed his duties, and commanded his regiment at Gettysburg. In January, 1864, another large abscess formed and discharged posteriorly. The orifice was enlarged by Dr. L. D. Sayre of New York, and a seton of oakum was passed from before backwards through the entire track of the ball. This was worn for several weeks, when Surgeon M. K. Hogan, U. S. Vols., substituted a seton of candle wick, which was gradually reduced in size, and finally replaced by a single linen thread.

The photograph was taken at the Army Medical Museum in August, 1865. The wound still discharged slightly, and the thread seton was still worn.

Promoted to be a brigade commander, General Barnum has been almost continually in the field for the past two years. He participated in the campaigns of Atlanta, Georgia and Carolina, was shot through the right forearm at Konesaw Mountain, and received a shell wound of the side at Peach Tree Creek.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 94. *Gunshot Fracture of the Vitreous Table of the Cranium without Fracture of the External Table.*

Private David Pugh, Co. C. 35th Wisconsin Vols., was wounded at Tupelo, Mississippi, July 18th, 1864, by a musket ball, which struck the skull obliquely, and apparently inflicted a scalp wound merely, between the sagittal suture and the left parietal protuberance.

There were no signs of cerebral disturbance. The wound was dressed simply, and the patient was conveyed to Memphis, Tennessee, and admitted into the Adams U. S. General Hospital on July 23d. He was then perfectly rational and free from head symptoms.

Two days subsequently, indications of compression of the brain were observed, and, on the afternoon of the 25th, then had rapidly become aggravated. The pulse was slow, the respiration laboured, the pupils dilated, the sphincters relaxed. A very careful exploration of the wound was made, but, of course, no cranial fracture could be detected. The treatment was limited to cold applications to the head, scarified cups to the nucha, and brisk purging. On the 26th, the patient gradually became comatose. The discharges from the bowels and bladder were involuntary. The patient continued to sink on the 27th, and died at 1 A. M., on the 28th of July.

At the autopsy, the internal table of the left parietal was found to be fractured and depressed at a point corresponding with the wound in the scalp. The dura mater was wounded, and there was a large abscess in the left cerebral hemisphere.

The specimen is preserved in the Army Medical Museum, and is numbered 1568. It was forwarded, with an account of the case, by Acting Assistant Surgeon R. M. Coale, U. S. A.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Creator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES. No. 95. *Bones of the Right Knee exhibiting Reparative Attempts after a Gunshot Perforating Fracture of the Head of the Tibia and the Results of Secondary Inflammation of the Knee-joint.*

Private Peter Costello, Co. E, 88th Illinois Vol., was wounded at Mission Ridge, Nov. 25th, 1863, by a musket ball, which entered the inner side of the head of the tibia, an inch and a half below the articular surface, perforated the bone from left to right, and comminuted the head of the fibula.

He was treated at Chattanooga until January 28th, 1864, when he was conveyed to Hospital No. 19, Nashville, Tenn., thence on February 4th, to Hospital No. 7, Louisville, Ky., and finally to the General Hospital at Madison, Indiana, where he was admitted on April 8th. Hopes were entertained of saving the limb when the patient arrived at Madison, but soon afterwards the discharge became very copious and offensive, abscesses formed about the joint and pus burrowed in the muscles of the thigh, and the patient was prostrated by a colliquative diarrhea.

In May, 1864, the thigh was amputated at the lower third by Surgeon, G. Grant, U. S. Vols. In the middle of July, there was sloughing of the stump, and an application of bromine was made, with benefit, as was believed.

On August 1st, Assistant Surgeon B. McCluer reports the case as likely to recover.

The reports ascribe the injury to the action of a conoidal bullet, but the remarkable absence of longitudinal fissuring and, indeed, of splintering of any sort, seems to preclude this supposition. There is a large deposition of callus about the perforation in the head of the tibia, and the removal of cartilage and destruction of ligaments common in suppurative inflammation of the knee-joint was conspicuous. The Specimen is numbered 3006, A. M. M. The details of the case are compiled from the records of this Office.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHIC SERIES, No. 96. *Ununited Gunshot Fracture of the Upper Third of the Right Femur, Seven Months after the Injury.*

Lieut. Goodwin, Co. E, 4th Minnesota, was wounded at the battle of Iuka, September 19th, 1862, by a conoidal musket ball, which entered behind the neck of the right femur and fractured the shaft of the bone. He was transferred to the City General Hospital, at St. Louis, Missouri, and was treated by simple extension. There was comparatively little reparative effort at the seat of fracture, and the patient died from exhaustion, April 18th, 1863. See Specimen 1325, A. M. M., forwarded with notes, by Surgeon J. T. Hodgen, U. S. Vols.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTTIS,

Br't Lt., Col., and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.
ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 97. *Perforating Gunshot Wound of the Abdomen.*

Private J. D. Smith, Co. D. 28th New York Volunteers, was wounded on May 1, 1863, at Chancellorsville by a conoidal musket ball, fired at a distance of not more than thirty yards. The projectile entered nearly over the left abdominal ring, traversed the abdominal cavity and made its exit at the upper part of the right buttock. He walked an hundred yards after he was hit. There was quite free bleeding from the anterior wound. He was treated in the Twelfth Corps Hospital. There were no symptoms of peritonitis. The appetite was good, the bowels regular, the functions of the bladder perfect. By the 21st of May, his wound was entirely healed, and he was discharged from service by reason of the expiration of his term of enlistment. The drawing was made by direction of Surgeon J. H. Brinton, U. S. V., by Hospital Steward Stauch, U. S. A., a few days after the reception of the wound. The facts of the case were communicated by Surgeon E. Goodman, U. S. V., Medical Director of the Twelfth Army Corps.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

SURGICAL SERIES OF DRAWINGS, No. 17.—PHOTOGRAPHIC SERIES, No. 98. *Great Destruction of the Soft Parts in the Gluteal and Lumbar Regions by a Fragment of Shell.*

Private John E. Tucker, Co. A, 17th Maine Vols., aged 20 years, was wounded, by the explosion of a shell, at the battle of Chancellorsville, May 3d, 1863. The integuments over the gluteal and lumbar regions were torn away, and, on the right side, a large portion of the gluteal muscles were removed. He was admitted to Armory Square Hospital, at Washington, on May 8th. He suffered but little pain, and his appetite was good. He was ordered the best of diet, with porter; lint, wet with a disinfectant lotion, to the wound, and an anodyne at night.

The patient did well till the forenoon of May 15th, when he complained of inability to separate his jaws, and of stiffness of the muscles of the neck. He took a full dose of morphia; but on the following day the trismus was more confirmed, and there was slight opisthotonos. The report makes the contradictory statement, that there was no spasmodic action of the muscles. No trouble in deglutition or respiration. Turpentine stupes were applied to the neck, and the fourth of a grain of sulphate of morphia was given every four hours with milk punch. On May 18th, the jaws could be separated more, and there was less stiffness about the neck. On the 20th, there were frequent involuntary twitchings of the dorsal muscles. The wound was more painful. It was dressed with olive oil on cotton batting, and, later in the day with a solution of morphia. The internal administration of morphia was continued. On the 21st and 22d, the symptoms continued to amend. The patient could separate his jaws, and protrude his tongue. He had a fourth of a grain of sulphate of morphia every hour, applications of ice to the spine, and the wound was dressed every six hours with a lotion containing six grains of morphia. On the 22d, there was a defecation from the bowels.

From this date the patient steadily improved. On July 10th he received a furlough. He returned to the hospital on Nov. 24th, 1863. He was then able to walk with a cane. On Dec. 8th, 1863, he was examined by Surgeon J. H. Brinton, U. S. Vols. The wound had healed except over a space the size of the palm of the hand, which surface was granulating kindly. The right buttock was flattened and wasted. The gait was feeble and uncertain. The general health appeared to be good.

The date at which the drawing was made by Hospital Steward Stanch, U. S. A., is not recorded nor the date of the patient's discharge from service.

Photographed at the Army Medical Museum,

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Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.

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PHOTOGRAPHIC SERIES. No. 99. *Hyperostosis of the Extremities of the Right Tibia and Fibula, after Amputation of the Leg.*

Private William Nevelling, Co. A, 71st Penn. Vols., was wounded at White Oak Swamp, June 29th, 1862, by a conoidal musket ball, which shattered the right ankle-joint, and splintered the tibia longitudinally for several inches.

Amputation was performed, a few hours subsequently, at the middle of the leg. On July 1st, the patient was made a prisoner, and was conveyed to Richmond. He was released on July 25th, and was sent to Broad and Cherry Street Hospital, in Philadelphia. Here the stump was irritable and indisposed to heal; the tibia became necrosed, and a ring of bone was thrown off from its extremity. On June 10th, 1863, the patient was transferred to Satterlee General Hospital. The stump was still open, and the extremities of the tibia and fibula were greatly enlarged. Over the hyperostosis, the soft parts were continually ulcerating.

On August 27th, 1863, the disease of the bones had extended as high as the insertion of the ligamentum patellæ, and re-amputation was decided upon. The operation was performed at the knee-joint, by Acting Asst. Surgeon T. G. Morton, U. S. A. He made a long anterior flap, leaving the patella in position, and a short posterior flap. The patient promptly recovered with a firm, well rounded stump. A photograph of the stump accompanies the Specimen, which is numbered 2778 in the Museum Collection.

The extraordinary osseous formation at the divided extremities of the tibia and fibula is due to an exaggeration of the natural process by which the extremities of bones are rounded off, and presents the histological characters of ordinary callus.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

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Surgeon General's Office.

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PHOTOGRAPHIC SERIES, No. 100. *Seven Heads of Humeri excised for Gunshot Injuries.*

Specimen 2914 shows a fracture of the surgical neck of the right humerus, in the case of Private J. L. Butler, Co. G, 45th Penn. Vols. He was wounded June 3d, 1864. Excision was performed June 11th, at Carver Hospital. The wound did well for several weeks, but the case terminated fatally August 16th, 1864, from chronic diarrhœa.

Specimen 2599 is from Private John Farrel, Co. C, 72d Penn. Vols. He was wounded at Gettysburg, July 3d, 1863. Excision was performed on July 22d, and death ensued on July 27th.

Specimen 1999. Corporal Raselas MacLane, Co. C, 1st U. S. Sharpshooters, had a conoidal musket ball lodged in the head of the right humerus, November 27th, 1863. Excision was practiced on December 20th, 1863, at Fairfax Seminary Hospital. No bad symptoms supervened and the patient was discharged from service on February 22d, 1864.

Specimen 2363 was furnished by Private D. B. Wiggin, Co. F, 1st Maine Heavy Artillery, wounded at the battle of North Anna, May 19th, 1864. The operation was performed at Armory Square Hospital on May 23d, and the patient died on June 8th.

Specimen 2830 is from Private William Whitecomb, Co. B, 60th Ohio Volunteers.

Specimen 2830 is a singular example of an excision of the upper extremity of a humerus, necrosed in consequence of a gunshot injury, the involucrum having previously been perforated by a trephine. Case of Private Theodore Peterson. Death, April 22d, 1863.

Specimen 2595 is the head of the left humerus of Private Charles Naylor, Co. I, 11th New York Vols., who was wounded May 3d, 1863. Excision performed August 16th, 1863, by Dr. J. H. McClellan. The result was very satisfactory and Naylor was transferred to the Veteran Reserve Corps, February 25th, 1864.

Photographed at the Army Medical Museum,

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Be't Lt. Col. and Surg. U. S. V., Curator A. M. M.

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PHOTOGRAPHIC SERIES NO. 101. *Group of Officers, who have undergone Amputation for Gunshot Injuries.*

The officer on the right of the group is Captain Charles H. Houghton, who was wounded before Petersburg, March 25th, 1865, by a fragment of shell, which comminuted the condyles of the right femur. Circular amputation at the middle third was performed the same day. On July 30th Captain Houghton was discharged from hospital well.

Next in order is Captain Edward A. Whaley, 6th Wisconsin Vols., whose right femur was fractured by a musket ball, at Five Forks, Va., April 1st, 1865. Amputation was performed immediately. On May 15th, he walked on crutches, and on August 15th went to his home well.

His neighbor, Lieut. Moretz Lowenstein, was similarly wounded at the same battle. He underwent immediate amputation, and recovered sufficiently to use crutches on May 12th.

Lieut. W. H. Humphreys had both bones of the right leg shattered by a shell, on April 2d, in the assault on the lines before Petersburg. Amputation at the lower third of the thigh was performed on the field. He was discharged from hospital August 14th, 1865.

Colonel George R. Maxwell, 1st Michigan Cavalry, had his left femur fractured by a musket ball at Five Forks, Va., April 1st, 1865. His thigh was amputated at Armory Square Hospital on April 19th. He left the hospital "well" on August 13th.

Lieut. W. C. Weeks, 5th Michigan Cavalry, was shot through the left ankle joint on April 1st, 1865, and a Pirogoff amputation was performed the same day by the surgeon of his regiment, Dr. St. Clair. He had a firm stump by the latter part of June.

Behind the other figures stands Lieut. J. G. Turke, whose right humerus was shattered at Fort Haskell, near Petersburg, March 25th, 1865, by a musket ball. He made a rapid recovery after an amputation at the shoulder joint.

The other standing figure is Acting Assistant Surgeon C. P. Porter, U. S. A., who communicated the memoranda of the cases. All of them were treated at Armory Square Hospital at Washington.

Photographed at the Army Medical Museum,

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PHOTOGRAPH 102. *Encephaloid Tumor at the Angle of the Jaw.*

In December, 1864, William P——, aged sixty-two years, thirty of which were passed in the army of the United States, an inmate of the Soldier's Home, at Washington, complained of a small indolent swelling, under the angle of the lower jaw, on the left side. The tumor was painted with tincture of iodine for about three weeks; but its growth was not arrested. The patient then left the Asylum, but returned after an absence of three months. During this period the tumor increased rapidly in bulk. In October, 1865, its attachments extended from the mastoid process of the left temporal backwards to within half an inch of the spinous process of the upper cervical vertebræ, upwards over the occipital bones and the ramus of the inferior maxilla, and downwards along the sterno-cleido-mastoidens to within two inches of the middle of the clavicle, deflecting the trachea and œsophagus to the right. Brevet Lieutenant Colonel C. H. Laub, Surgeon, U. S. A., regarded the tumor as a malignant one, and in view of the great danger that its extirpation would involve and the probability of its recurrence, decided against any operative interference. The tumor enlarged rapidly, and greatly impeded respiration and deglutition, and there was grave constitutional disturbance. On October 22, 1865, the patient died. The tumor was removed *post-mortem*. It is preserved in the Surgical Section of the Army Medical Museum as No. 4961.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bo't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES No. 103.—*Excised Head and Portion of Shaft of Left Humerus, comminuted by a Musket Ball.*

Second Lieutenant Horace G. Jacobs, Co. G, 6th Maine Vols., aged eighteen years, was wounded at Rappahannock Station, Va., November 7th, 1863, by a conoidal ball, which entered the left shoulder posteriorly, two inches from the acromion process, fractured the upper extremity of the humerus, and made its exit an inch and a half below the middle of the clavicle. He was admitted to Armory Square U. S. A. General Hospital, November 9th, 1863, and, on the following day Surgeon D. W. Bliss, U. S. Vols., excised the head and two and a half inches of the shaft of the left humerus, insensibility being induced by chloroform; the soft parts were much swollen and ecchymosed at the time, and the patient was feverish. The progress of the case was satisfactory. On May 28th, 1864, the wound had healed, and Lieut. Jacobs was discharged from service. He was subsequently employed in the office of the Commissary General at Washington, D. C. Nearly a year afterwards half of a ring of bone from the upper extremity of the humerus exfoliated. After this the cicatrix appeared firm and sound. In the spring of 1865, the photograph was taken at the Army Medical Museum. There was then unusual control over the movements of the arm. The power of abduction even existed to a remarkable degree. The specimen of the excised portion of bone is preserved at the Museum as Specimen No. 1767. The history of the case is recorded in the Surgical Records, S. G. O., Excisions, Vol. I, p. 22. On January 16th, 1866, Dr. Otis examined Lieut. Jacobs's shoulder. His control over the mutilated arm was more complete than exists in any other case of excision of the head of the humerus which has come under his observation. He could put his hand on the top of his head, and could lift a heavy weight. The amount of shortening was precisely three inches.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt. Lt. Col. and Surg., U. S. V., Curator, A. M. M.

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES No. 104.—*Excised Knee-joint. A Round Musket Ball in the Inner Condyle of the Right Femur.*

Private Gardiner Lewis, Co. B, 19th Indiana Vols., aged twenty-two, was wounded in the battle of Gettysburg, July 1st, 1863, by a round musket ball, which lodged in the internal condyle of the right femur. On November 27th, 1863, he was admitted into Jarvis U. S. A. General Hospital, Baltimore, Md., the knee being disorganized and discharging a fetid pus. On December 1st, Acting Assistant Surgeon F. Hinkle, U. S. A., excised the articular ends of the tibia and femur, sawing off an inch of the condyle of the femur, and three-fourths of an inch of the head of the tibia. An H incision was employed. At the time of the operation the patient was feverish, anxious, without appetite, and sleepless from intense pain. He did well until several days after the operation, when he had a chill. Chills recurred each alternate day, and other symptoms of purulent infection were manifested. On December 23d, the case terminated fatally. The autopsy revealed metastatic foci in the lungs, and six ounces of pus in the left pleural cavity. The incisions were healed, and the ends of the bones were found in apposition, but no union had occurred. The excised portions of the femur and tibia are preserved in the Army Medical Museum, as *Specimen No. 1956*, and the history of the case is recorded in the Surgical Records, S. G. O., Excisions, Vol. VI., p. 122.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt. Lt. Col. and Surg., U. S. V., Curator, A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES No. 105.—*Perforating Gunshot Wound of the Abdomen followed by Fæcal Fistula.*

Private Franklin Harsh, Co. G, 7th Ohio Vols., was wounded at Chancellorsville, May 3d, 1863, by a conoidal musket ball, which entered the abdomen six inches to the right of the umbilicus, and passed out posteriorly, having wounded the ascending colon and the crest of the right ilium. He was admitted to Armory Square Hospital, at Washington, and remained there for a long time with a fecal fistula. On September 13th, 1863, the anterior wound had closed, and the discharge from the posterior wound was much diminished. Ultimately the posterior fistula closed, and the patient was discharged from service May 7th, 1864. Early in the history of the case, Hospital Steward Stauch, U. S. A., one of the artists of the Army Medical Museum, prepared a colored drawing of the patient, from which the photograph is copied. (Nos. 21 and 22, Surgical Series of Drawings, S. G. O.) A brief history of the case was furnished by Surgeon D. W. Bliss, U. S. Vols. See Surgical Records, S. G. O., Wounds and Injuries, Vol. 14, p. 121.

Photographed at the Army Medical Museum,

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PHOTOGRAPHS 106 AND 107. *Successful Excision of the Upper Portion of the Shaft of the Right Femur.*

At the battle of Cold Harbor, June 3, 1864, Private Jason W. Joslyn, Co. I, 7th New York Heavy Artillery, aged 24 years, was struck in the right gluteal region by a conoidal musket ball, which passed forwards and downwards, striking the femur a little below the trochanter major, and commencing the upper third of the shaft. He fell into the hands of the enemy and on June 5, fifty-four hours after the reception of the injury, an excision of the shattered femur was made, through a vertical linear incision, commencing near the upper point of the trochanter major and carried downwards seven and a half inches, in the axis of the limb. The femur was divided between the trochanters by a chain saw and again, six and one-half inches below. The operation was performed at a field hospital by a confederate surgeon. On the same day, the patient was placed in an ambulance and sent to Richmond, a distance of thirteen miles, and placed in hospital No. 21, in charge of Surgeon G. W. Sempile. He states that he was very weak and exhausted on arriving at the hospital. His limb was placed in a fracture box, and he was ordered two ounces of whiskey twice daily, and a diet of corn and wheat bread with soup. Towards the end of June there was extensive sloughing of the soft parts on the outer side of the thigh. Joslyn remained in hospital in Richmond, until August 22, 1864, when he was paroled and sent into the Union lines. He was conveyed on the steamer New York to the general hospital at Annapolis. He was treated there until November 28, and then transferred to Jarvis Hospital at Baltimore, and again, on January 31, 1865, to Dale Hospital, at Worcester, Massachusetts. The report from Annapolis having stated that Joslyn had survived an excision of the head and a portion of the shaft of the femur, it was directed by the Surgeon General that the case should be carefully observed and fully reported, and instructions to this effect were sent to Jarvis and subsequently to Dale Hospital. Assistant Surgeon D. C. Peters, U. S. Army, in charge of Jarvis Hospital reported as the result of his examination, that in consequence of fracture of the neck and great trochanter by a fragment of shell, the head and about two inches of the shaft had been removed; that the limb was shortened six inches and could be swung backwards and forwards but not rotated or abducted. Surgeon Cyrus N. Chamberlain, U. S. Volunteers, in charge of Dale Hospital, reported on March 31, 1865, that Joslyn was in perfect health, the wound healed and free from tenderness, the limb moveable in every direction and perfectly under the control of the muscles, and shortened six inches. The patient stated that the operator had sent a letter to the surgeon in charge of Hospital No. 21 describing the operation as an excision of the head and six inches of the shaft of the femur. Dr. Chamberlain found that the upper extremity of the femur was much enlarged, and that a good false joint had formed. On this testimony, the case was included in the tabular statement of excisions of the head of the femur published at page 68 of Circular No. 6, Surgeon General's Office, 1865. But while that report was in press, evidence was adduced that the excision did not involve an exarticulation. It was too late to withdraw the case from the table; but a memorandum was inserted that the report might not mislead. On August 29, 1865, Joslyn was transferred to De Camp Hospital, David's Island, New York. Here a critical examination of the limb was made by Assistant Surgeon Warren Webster, U. S. Army, and Professor F. H. Hamilton. There can be no doubt that the head of the femur still occupied the acetabulum. There was a great deposit of new bone at the remnant of the trochanter major with the upper extremity of the resected shaft. The shortening was six and one-half inches, by careful measurement. Joslyn could bear his entire weight on the limb. The thigh could be flexed and extended naturally. When it was rotated, the trochanter major could be felt going through its circuit. The thigh and leg were atrophied; the cicatrix was extensive, owing probably to the sloughing that took place soon after the operation, but it was firm and healthy; the gastrocnemius and the extensors of the foot were rigid; the foot was extended to the utmost. In October, 1865, Dr. E. D. Hudson supplied the patient with an ingenious prothetic apparatus, consisting of a case of raw hides, laced upon the thigh and leg, and terminating in an artificial foot, with ginglymoid articulations at the ankle and toes. With this apparatus Joslyn could walk with ease, aided by a light cane. He was discharged from service, and went to his home in Oxford, Massachusetts, on October 26, 1865. The photographs representing the appearance of the patient with and without the apparatus were contributed by Assistant Surgeon Warren Webster, U. S. Army.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHS 106 AND 107. *Successful Excision of the Upper Portion of the Shaft of the Right Femur.*

At the battle of Cold Harbor, June 3, 1864, Private Jason W. Joslyn, Co. I, 7th New York Heavy Artillery, aged 24 years, was struck in the right gluteal region by a conoidal musket ball, which passed forwards and downwards, striking the femur a little below the trochanter major, and comminuting the upper third of the shaft. He fell into the hands of the enemy and on June 5, fifty-four hours after the reception of the injury, an excision of the shattered femur was made, through a vertical linear incision, commencing near the upper point of the trochanter major and carried downwards seven and a half inches, in the axis of the limb. The femur was divided between the trochanters by a chain saw and again, six and one-half inches below. The operation was performed at a field hospital by a confederate surgeon. On the same day, the patient was placed in an ambulance and sent to Richmond, a distance of thirteen miles, and placed in hospital No. 21, in charge of Surgeon G. W. Semple. He states that he was very weak and exhausted on arriving at the hospital. His limb was placed in a fracture box, and he was ordered two ounces of whiskey twice daily, and a diet of corn and wheat bread with soup. Towards the end of June there was extensive sloughing of the soft parts on the outer side of the thigh. Joslyn remained in hospital in Richmond, until August 22, 1864, when he was paroled and sent into the Union lines. He was conveyed on the steamer New York to the general hospital at Annapolis. He was treated there until November 28, and then transferred to Jarvis Hospital at Baltimore, and again, on January 31, 1865, to Dale Hospital, at Worcester, Massachusetts. The report from Annapolis having stated that Joslyn had survived an excision of the head and a portion of the shaft of the femur, it was directed by the Surgeon General that the case should be carefully observed and fully reported, and instructions to this effect were sent to Jarvis and subsequently to Dale Hospital. Assistant Surgeon D. C. Peters, U. S. Army, in charge of Jarvis Hospital reported as the result of his examination, that in consequence of fracture of the neck and great trochanter by a fragment of shell, the head and about two inches of the shaft had been removed; that the limb was shortened six inches and could be swung backwards and forwards but not rotated or abducted. Surgeon Cyrus N. Chamberlain, U. S. Volunteers, in charge of Dale Hospital, reported on March 31, 1865, that Joslyn was in perfect health, the wound healed and free from tenderness, the limb moveable in every direction and perfectly under the control of the muscles, and shortened six inches. The patient stated that the operator had sent a letter to the surgeon in charge of Hospital No. 21 describing the operation as an excision of the head and six inches of the shaft of the femur. Dr. Chamberlain found that the upper extremity of the femur was much enlarged, and that a good false joint had formed. On this testimony, the case was included in the tabular statement of excisions of the head of the femur published at page 68 of Circular No. 6, Surgeon General's Office, 1865. But while that report was in press, evidence was adduced that the excision did not involve an exarticulation. It was too late to withdraw the case from the table; but a memorandum was inserted that the report might not mislead. On August 29, 1865, Joslyn was transferred to De Camp Hospital, David's Island, New York. Here a critical examination of the limb was made by Assistant Surgeon Warren Webster, U. S. Army, and Professor F. H. Hamilton. There can be no doubt that the head of the femur still occupied the acetabulum. There was a great deposit of new bone at the reunion of the trochanter major with the upper extremity of the resected shaft. The shortening was six and one-half inches, by careful measurement. Joslyn could bear his entire weight on the limb. The thigh could be flexed and extended naturally. When it was rotated, the trochanter major could be felt going through its circuit. The thigh and leg were atrophied; the cicatrix was extensive, owing probably to the sloughing that took place soon after the operation, but it was firm and healthy; the gastrocnemius and the extensors of the foot were rigid; the foot was extended to the utmost. In October, 1865, Dr. E. D. Hudson supplied the patient with an ingenious prosthetic apparatus, consisting of a case of raw hides, laced upon the thigh and leg, and terminating in an artificial foot, with ginglymoid articulations at the ankle and toes. With this apparatus Joslyn could walk with ease, aided by a light cane. He was discharged from service, and went to his home in Oxford, Massachusetts, on October 26, 1865. The photographs representing the appearance of the patient with and without the apparatus were contributed by Assistant Surgeon Warren Webster, U. S. Army.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office,

ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES NO. 108.—*Ambulance Wagon designed by Brig. Gen. D. H. Rucker.*

This ambulance has been recommended as the regulation ambulance for the U. S. Army. It weighs 1150 pounds. Its principal dimensions are as follows:

Length, including footboard and step,	-	-	-	-	10 feet 7 inches.
Width, from outside of hubs,	-	-	-	-	5 feet 11 inches.
Length of body inside,	-	-	-	-	7 feet 4 inches.
Length, including seat box,	-	-	-	-	8 feet 6 inches.
Width of body inside,	-	-	-	-	3 feet 11 inches.
Height of body inside,	-	-	-	-	4 feet 10 inches.
Diameter of hind wheels,	-	-	-	-	4 feet 3 inches.
Diameter of front wheels,	-	-	-	-	3 feet 8½ inches.
Width of foot board,	-	-	-	-	13½ inches
Width of step,	-	-	-	-	9½ inches.

Photographed at the Army Medical Museum,

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GEORGE A. OTIS,

Bvt. Lt. Col. and Surg., U. S. V., Curator, A. M. M.

Surgeon General's Office.

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PHOTOGRAPH No. 109. *Plan of the Fittings of the U. S. Hospital Transport "General J. K. Barnes."*

The steamship "General J. K. Barnes" was originally built for the Havre line, and was purchased by the Government of the United States, and fitted out at New York, under the supervision of Surgeon A. H. Hoff, U. S. Vols., as an hospital transport. This steamer is of 1400 tons, is 228 feet in length, and is provided with 477 beds. During the last two years of the war, it was continually employed in transporting sick and wounded from the southern military departments to the Department of the East.

The photograph is taken from drawings furnished by Brevet Major and Assistant Surgeon Thomas McMillen, U. S. A.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Det Lt. Col. and Surg. U. S. V., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 110. *Successful Excision of the Head of the Left Femur for Gunshot Fracture.*

Private Joseph Brown, Co. I, 3rd Michigan Vols., aged thirty-eight years, was wounded at the second battle of Bull Run, August 29th, 1862, by a musket ball, which fractured the left femur through the trochanter minor. He laid on the battle field three days, and was then removed to Centreville. On September 11th, 1862, he was admitted to Fairfax Seminary Hospital, near Alexandria. The limb was kept in position by appropriate apparatus; but suppuration was profuse, and, on two occasions, fragments of bone were removed from the wound. Early in March, 1863, there was great swelling of the thigh; the discharge became scanty and fetid, and pus burrowed until the muscles of the thigh. On March 21st, an exploratory incision was made from three inches above to five inches below the prominence of the great trochanter. The neck and upper extremity of the shaft of the femur were found to be extensively diseased, and excision was decided on. The shaft of the femur was divided six inches below the great trochanter, and the head was then disarticulated. The shock from the operation was great, and the patient rallied slowly. Two days after the operation, an erysipelatous blush pervaded the limb; but it passed away, and the case progressed favorably. A tube was introduced to the bottom of the wound, which was frequently washed out by this means. Stimulants and concentrated nourishment were perseveringly administered.

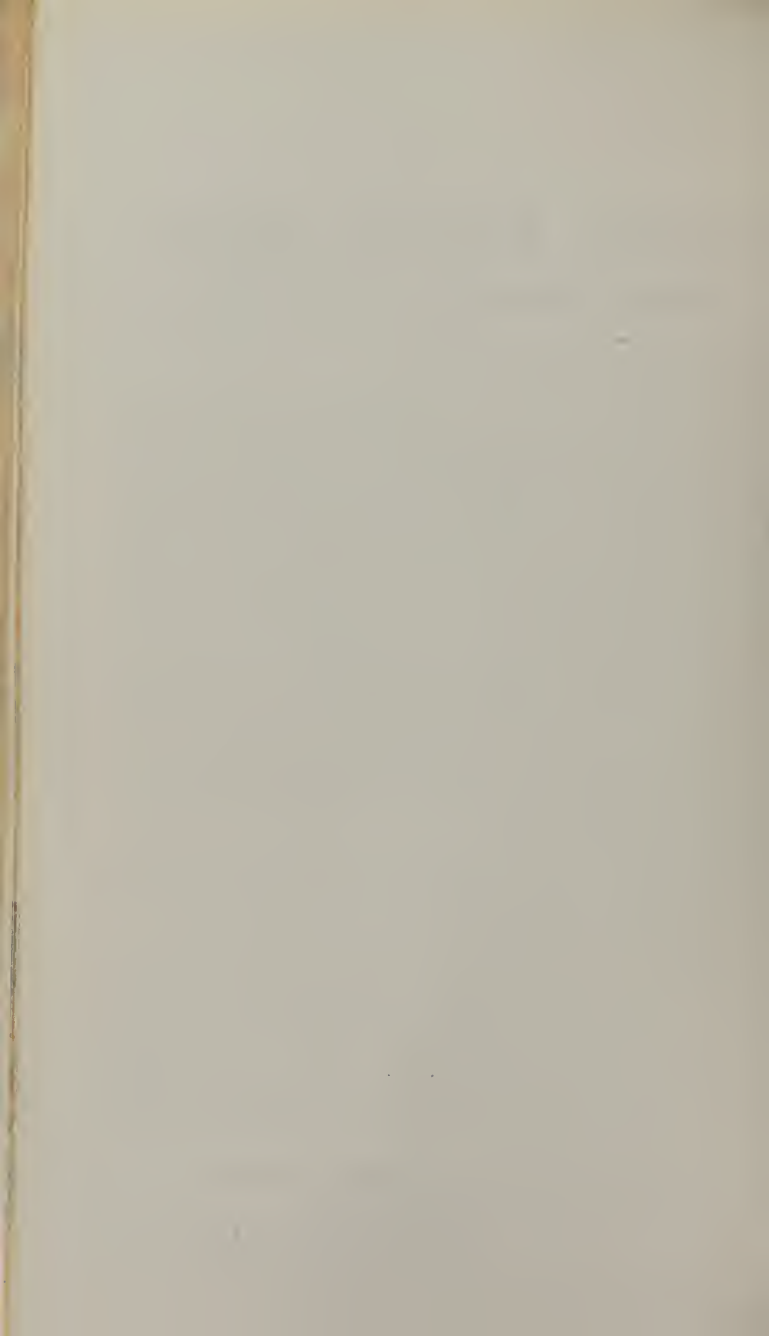
In May, 1863, the patient was considered out of danger. In September, he was reported as "recovered" and a sketch of the appearance of the limb was made by Hospital Steward Stauch, from which a careful drawing was subsequently executed by Mr. Baumgras (Surgical Series of Drawings, No. 73.) The upper extremity of the femur was sent to the Army Medical Museum, where it is preserved as Specimen 1192. On August 23d, 1863, Brown was discharged from the service of the United States. On March 21st, 1864, one year from the date of the operation, he reported from his home in Coopersville, Michigan, that he was in good health. On September 20th, 1865, he again wrote, and gave a particular account of the amount of motion in his limb, and stated that there had been no breaking out of abscesses or other inconvenience since his last communication. This letter is quoted in Circular No. 6, S. G. O., 1865, p. 75. Afterwards Mr. Brown sent a photograph taken in November, 1865, of which this is a copy.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Bvt Lt. Col. and Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 111. *Consolidated Gunshot Fracture of Upper Third of Right Femur.*

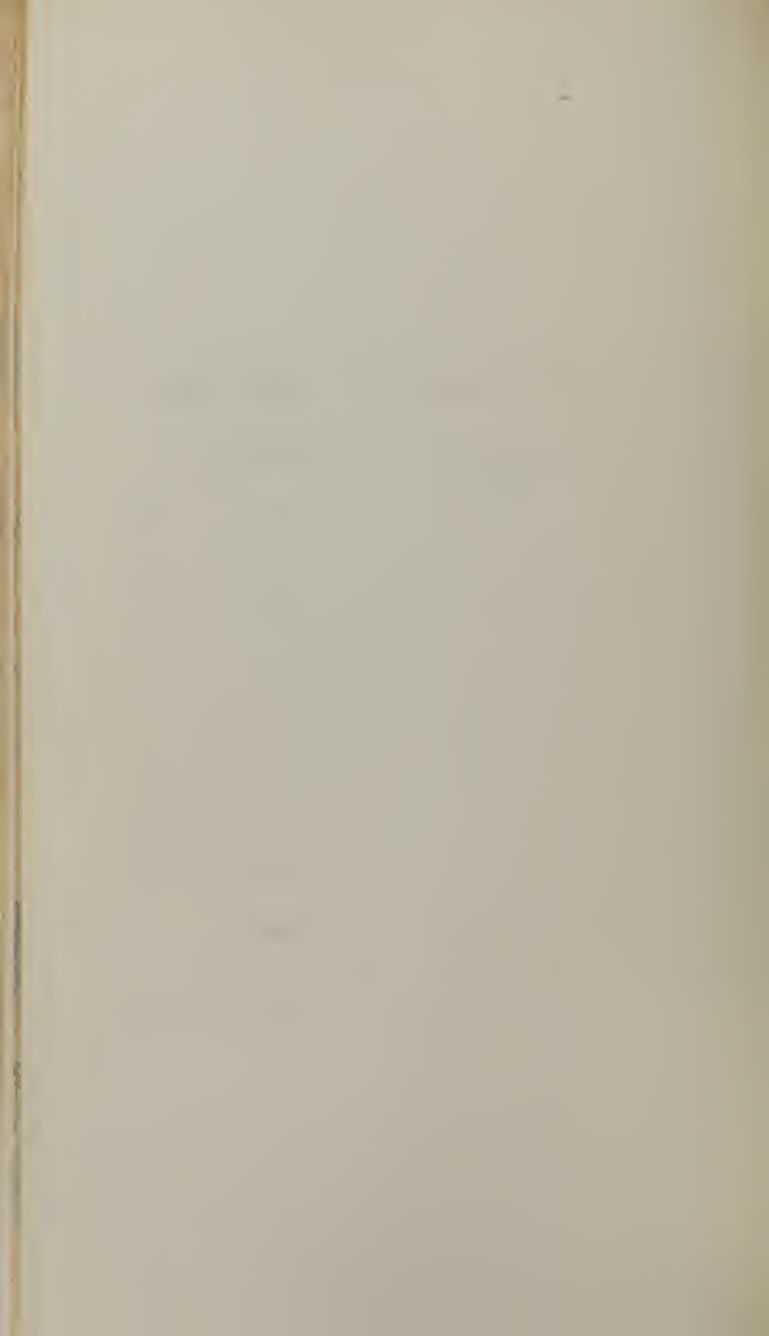
Private William Rigney, Co. G, 21st New York Cavalry, aged eighteen years, in attempting to escape from camp, through the line of sentinels, on May 27th, 1865, was shot at a distance of fifteen yards, by a Colt's army pistol ball, which entered the right nates, and passed out at the anterior part of the thigh, having fractured the upper third of the femur. He was admitted to Stanton General Hospital on May 29th. The details of the treatment are not entered on the records of that hospital. On September 13th, he was transferred to Harewood Hospital. The report from Harewood states that his constitutional condition was good at that date, that he was able to go about on crutches, and that the prospect of his having a useful limb was good. The injured femur had united firmly, with two inches shortening and very slight angular deformity. A photograph of the case was taken in October, 1865, from which this is copied.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

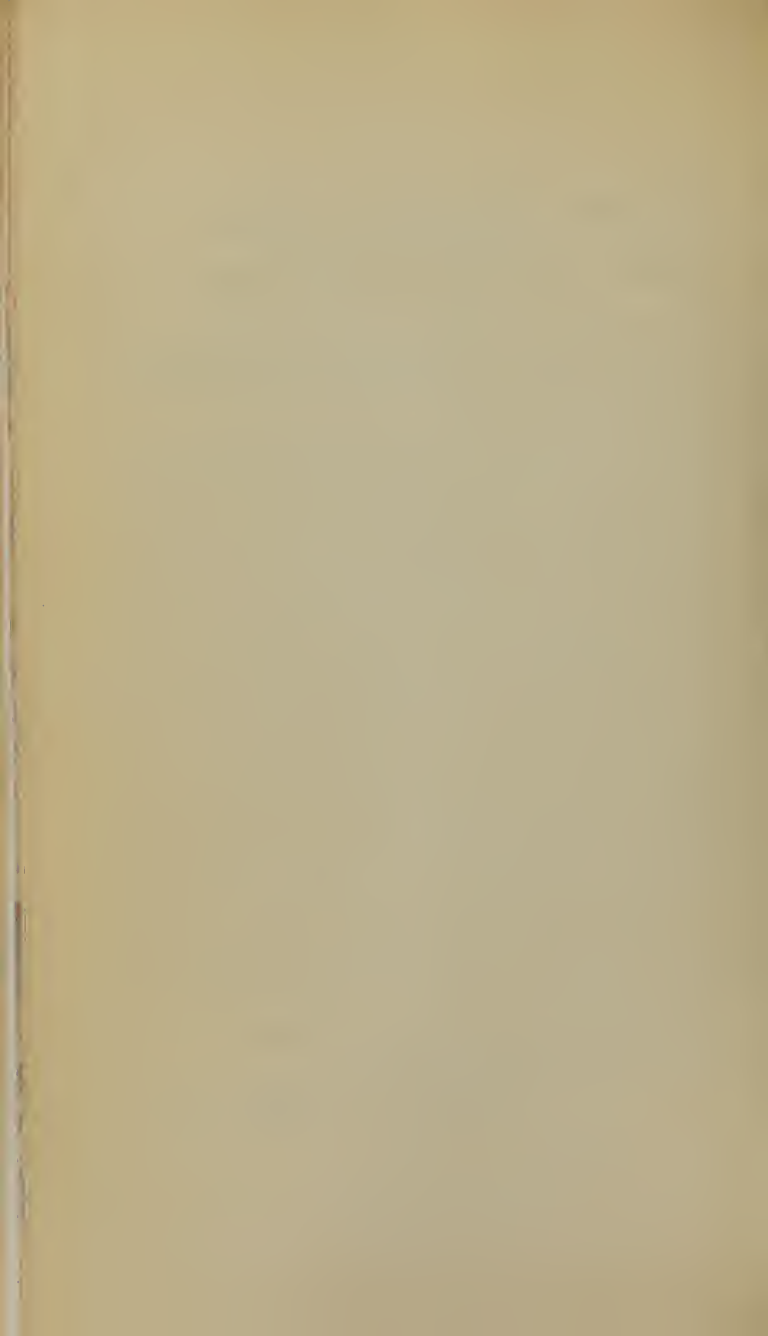
PHOTOGRAPHS NOS. 112 AND 148. *Successful Excision of the Head of the Left Humerus, followed by Necrosis and Secondary Excision of the remainder of the Humerus and the Upper Extremities of the Radius and Ulna.*

Private John E. F. Cleghorn, Co. K, 1st New Jersey Cavalry, aged twenty-seven years, was wounded at Mine Run, Virginia November 27, 1863, by a musket ball, which shattered the head of the left humerus. Three days afterwards the head and a small portion of the shaft were excised, at a field hospital, by Surgeon Henry K. Clark, 10th New York Cavalry. On December 5th the patient was transferred to the 3d Division Hospital at Alexandria, Virginia. On April 28, 1864, he was transferred to Ward Hospital, Newark, New Jersey, the wound being healed, with the exception of a slight fistulous sinus communicating with the sawn extremity of the shaft of the bone. Subsequently the entire shaft and condyles of the humerus became necrosed, and abscesses formed about the elbow. On July 21, 1864, an incision was made along the whole length of the outer aspect of the arm, and the diseased humerus was removed, together with the upper extremities of the radius and ulna. The wound left by this extensive operation healed rapidly, and on October 20, 1864, he was discharged from the hospital and from the service of the United States. In November, 1864, a prothetic apparatus was adapted to the arm by Dr. E. D. Hudson, which enabled the patient to exercise considerable control over the movements of the limb. A communication from the Commissioner of Pensions, dated September 10, 1866, states that this man is a pensioner, his disability being rated equal to the loss of a hand.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office,

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PHOTOGRAPH 113. *Successful Secondary Amputation at the Right Hip-joint. The Thigh had previously been amputated at the Middle.*

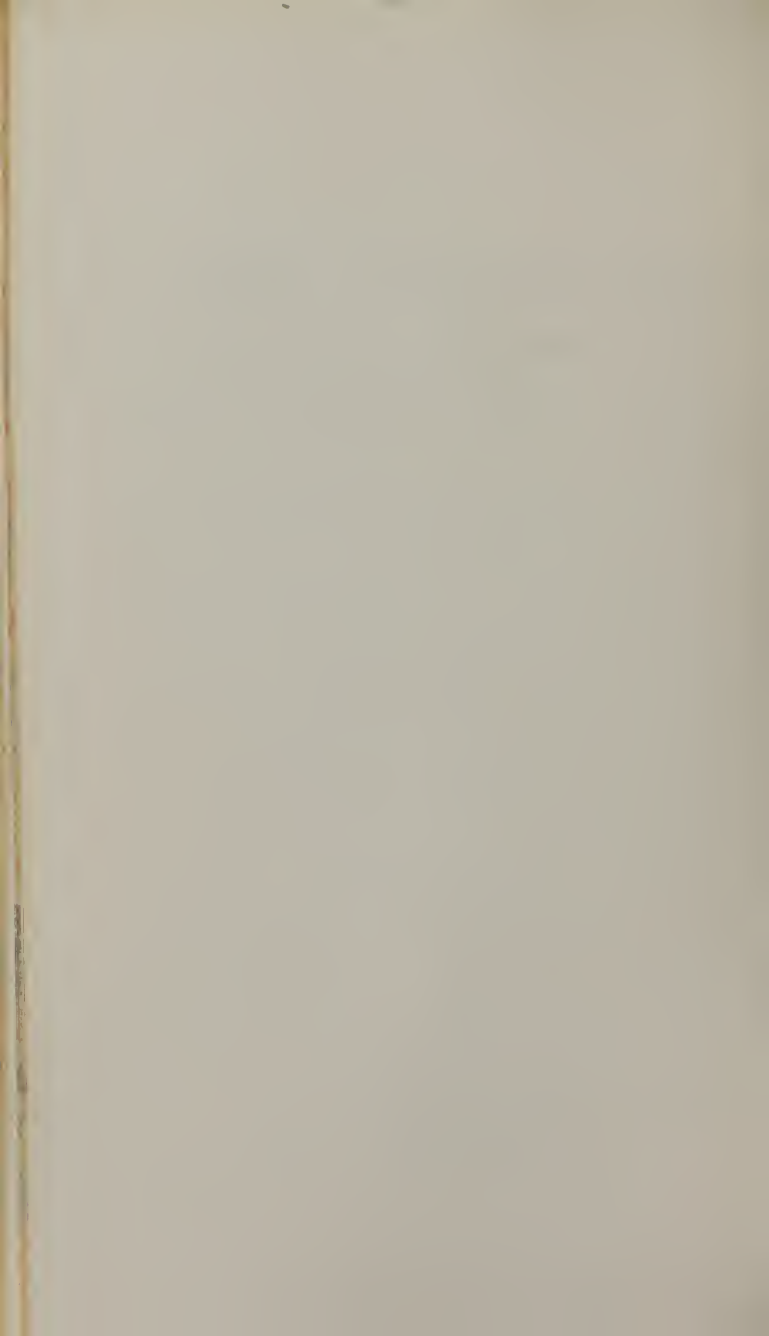
Private Lewis Francis, Co. I, 14th New York Militia, aged forty-two years, was wounded July 21st, 1861, at the first battle of Bull Run, by a bayonet thrust, which opened his right knee-joint. He received not less than fourteen other stabs, in different parts of the body, none of them implicating the great cavities. He was taken prisoner, and conveyed to Richmond, and placed in hospital. One of his wounds involved the left testis, which was removed on July 24th. On October 28th, 1861, his right thigh was amputated at the middle, on account of disease of the knee, with abscesses in the thigh. The double flap method was employed. The stump became inflamed, and the femur protruded. An inch of the bone was resected, and the flaps were again brought together. In the spring of 1862 the patient was exchanged and sent to Fort Monroe. Thence he was transferred to a Washington hospital, and thence to his home in Brooklyn, in March, 1862. There was necrosis of the femur, and in May, 1862, its extremity was again resected by a civil surgeon. On October 28th, 1863, Francis was admitted to the Ladies Home Hospital, New York. Necrosis had apparently involved the remaining portion of the femur. On May 21st, 1864, Surgeon A. B. Mott, U. S. Vols., laid open the flaps and exarticulated the bone. The patient recovered rapidly and had a sound stump. He was discharged August 12th, 1864. The photograph from which this is copied, was taken October 1st, 1865. Francis was then in good health. Dr. Mott reports that the pathological preparation of the exarticulated femur was stolen from his hospital.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Bvt Lt. Col. and Surg. U. S. V., Curator, A. M. M.



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PHOTOGRAPH No. 114. *Consolidated Gunshot Fracture of the Middle Third of the Left Femur.*

Private Thomas Miller, Co. G, 116th Penn. Vols., aged eighteen years, was wounded May 5th, 1864, at the battle of the Wilderness, by a conoidal musket ball which fractured his left femur at the upper part of the middle third. There was copious hæmorrhage after the injury. The patient was taken to Fredericksburg, and his limb was placed in a fracture box. There was much pain and swelling. On May 26th, he was conveyed to Armory Square Hospital, at Washington. On August 15th, 1865, he was transferred to Hazewood Hospital, convalescent. The injured limb was shortened two inches and three-quarters. The wounds were closed, and it was believed that the patient would have a useful limb.

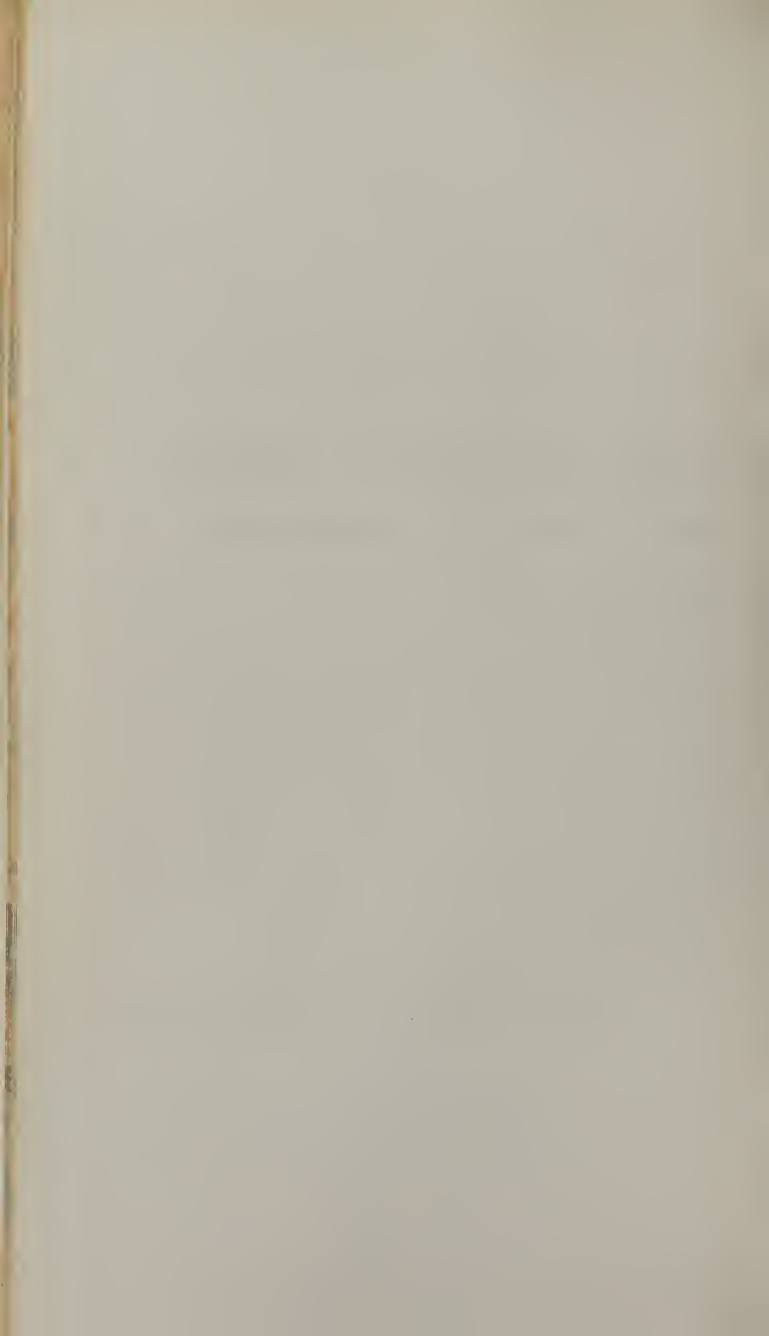
The photograph from which this is copied, was taken in October, 1865.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Lt. Col. and Surg. U. S. V., Curator, A. M. M.



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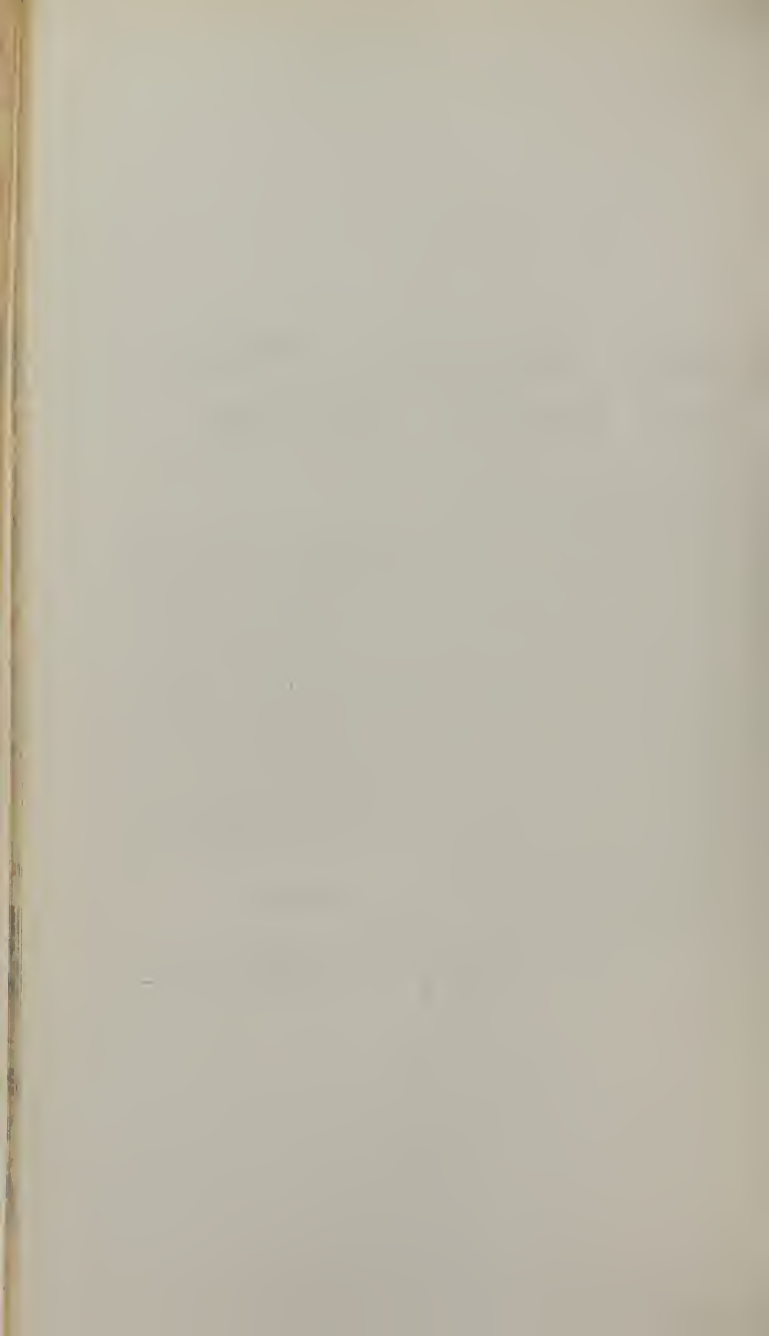
PHOTOGRAPH NO. 115. *Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Private Leonard Felder, Co. F, 1st Mass. Vols., aged twenty-two years, was wounded June 16th, 1864, in front of Petersburg, by two musket balls. One passed through the lower third of the right fore-arm, comminuting the ulna: the other entered the outer aspect of the right thigh and fractured the upper third of the femur. He was admitted to Harewood Hospital, at Washington, on June 22d, 1864. The ball that entered the thigh was extracted through an incision in the groin. Extension was made by raising the foot of the bed, the limb being secured, and the weight of the body making counter-extension. The fractured ulna was treated by simple dressings. The case progressed favorably. The fractured femur united firmly with two inches shortening. The wounds were closed, and the patient was in good condition when discharged from service on July 13th, 1865. At this date the photograph of which this is a copy, was taken at Harewood Hospital.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

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Br't Lt, Col, and Surg, U. S. V., Curator, A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 116. *United Gunshot Fracture of the Middle Third of the Right Femur.*

Corporal Sylvester Boyce, Co. B, 5th Michigan Vols., aged twenty-five years, was wounded at the battle of the Wilderness, May 6th, 1864, by a conoidal musket ball, which fractured the middle third of the right femur.

On June 1st, 1864, he was conveyed to Harewood Hospital, at Washington. There was no great constitutional disturbance, and the fracture was not extensively comminuted. A sustaining general treatment, with moderate extension of the limb was determined on, and the case progressed towards recovery without any untoward complication. The fracture united firmly with no angular deformity, and with less than an inch of shortening.

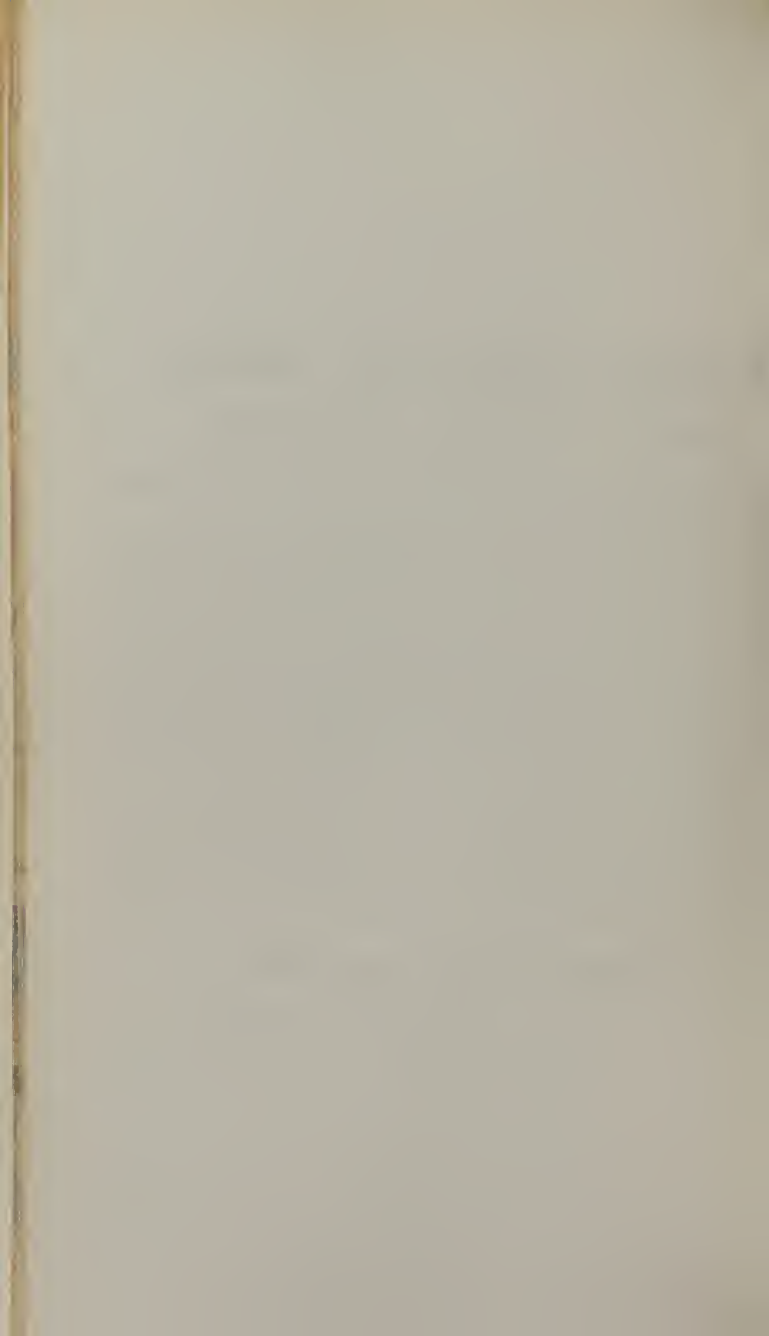
On July 14th, 1865, the wounds were closed, the fracture was consolidated, and the corporal was able to walk upon the injured limb without discomfort. At this date the photograph of which this is a copy was taken, and Boyce was discharged from the military service of the United States.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Surg. U. S. V., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 117. *United Gunshot Fracture of the Upper Third of the Left Femur.*

Private Peter Riley, Co. A, 10th New York Heavy Artillery, aged twenty-eight years, was wounded at Cold Harbor, Va., June 3d, 1864, by a conoidal musket ball, which entered the anterior aspect of the left thigh high up, fractured the upper third of the femur, and lodged posteriorly in the muscles.

He was admitted to Lincoln Hospital, at Washington, on June 11th, 1864. At first, extension and counter-extension were employed but on account of the severe pain induced, this treatment was discontinued. The ball was extracted through an incision, and, in July, free incisions were made for the evacuation of pus.

The patient slowly recovered, the injured limb being shortened four and a half inches. He was discharged from service in 1865.

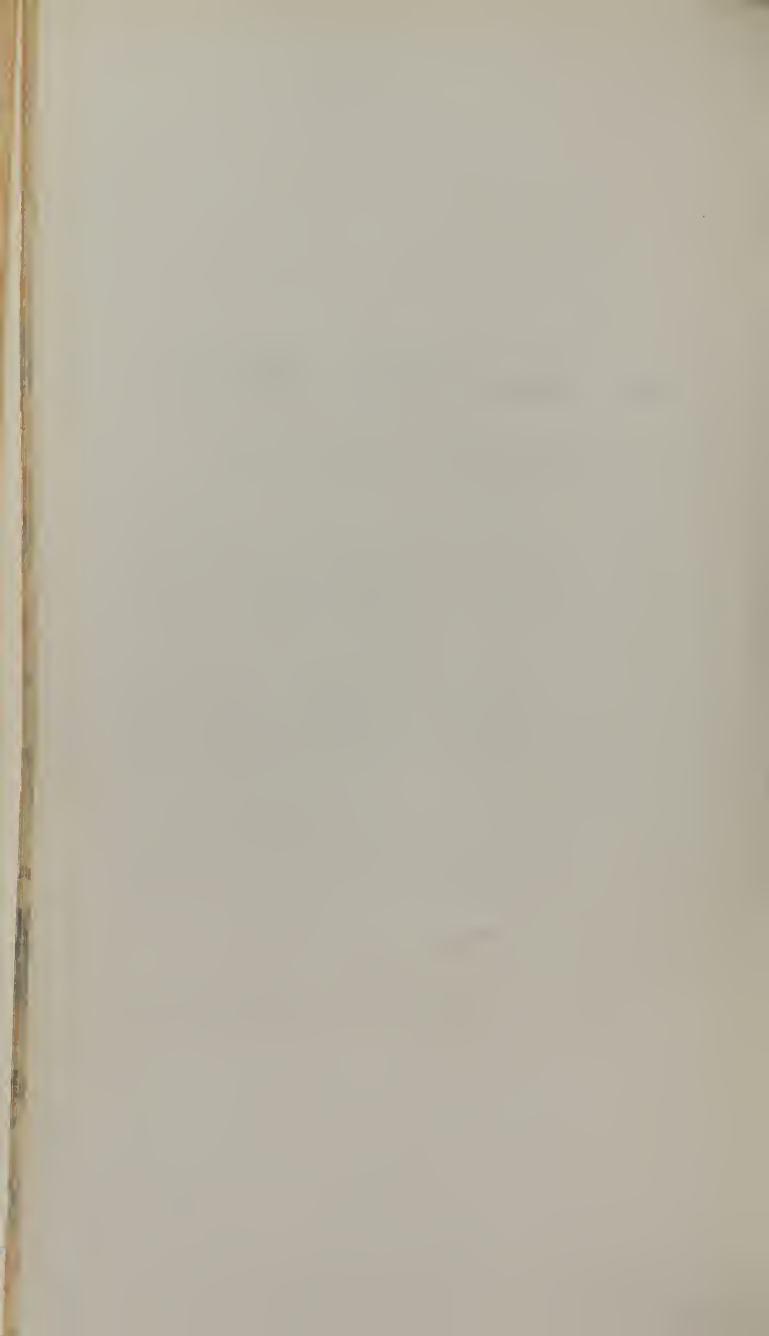
The photograph was taken at Lincoln Hospital, by direction of Surgeon J. C. McKee, U. S. A., on June 2d, 1865.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ret Lt. Col. and Surg. U. S. V., Curator A. M. M.



Surgeon General's Office,
ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 118. *United Gunshot Fracture of the Trochanter Major of the Left Femur.*

Private Charles H. Hodsdon, Co. G, 7th Maine Vols., was wounded at the battle of the Wilderness, May 5th, 1864, by a conoidal musket ball, which shattered the left trochanter major and buried itself in the gluteal muscles near the sacrum.

He was admitted to Lincoln Hospital, at Washington, on May 26th, 1864. The location of the ball was detected by means of a Nélaton probe, and on April 25th, 1865, it was extracted through a deep incision.

The fracture united firmly, and on June 4th, 1865, the wound was healed and the patient was nearly well.

At this date the photograph was taken by direction of Surgeon J. C. McKee, U. S. A., in charge of Lincoln Hospital.

Photograph Printed at the Army Medical Museum.

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GEORGE A. OTIS,
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PHOTOGRAPH SERIES, No. 119. *Consolidated Gunshot Fracture of the Middle Third of the Right Femur.*

Private John Hamilton, 1st Delaware Volunteers, aged 19 years, was accidentally wounded while on picket duty at Camp Hamilton, near Fort Monroe, Va., on November 10th, 1861, by a conoidal musket ball, which fractured the right femur a little above the middle. On the following day he was admitted to Hygeia General Hospital at Fort Monroe. Notwithstanding the extensive comminution of the bone, the fracture was consolidated at the end of five weeks, though there was moderate suppuration and exfoliation of necrosed fragments at intervals until June, 1862. The limb was kept in a straight position, and moderate extension was employed uninterruptedly. The wounds were at times dilated with sponge tents. In July, 1862, Hamilton was sent home with a sound limb, shortened not more than an inch. In the Spring of 1866, he reported himself to Surgeon and Brevet Lient. Colonel R. B. Bontecou, U. S. Vols., by whom the treatment was conducted, as entirely well, and possessed of a most useful limb. The photograph is enlarged from a card picture furnished by Dr. Bontecou.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.



**Surgeon General's Office,
ARMY MEDICAL MUSEUM.**

PHOTOGRAPH No. 120 *Gunshot Fracture of the Left Ilium.*

Commissary Sergeant George E. Corson, 1st Battalion, 17th U. S. Infantry, was wounded at the battle of Spottsylvania, May 12th, 1864, by a conoidal musket ball, which entered six inches to the left of the umbilicus, and passed directly backwards, fracturing the crest of the ilium.

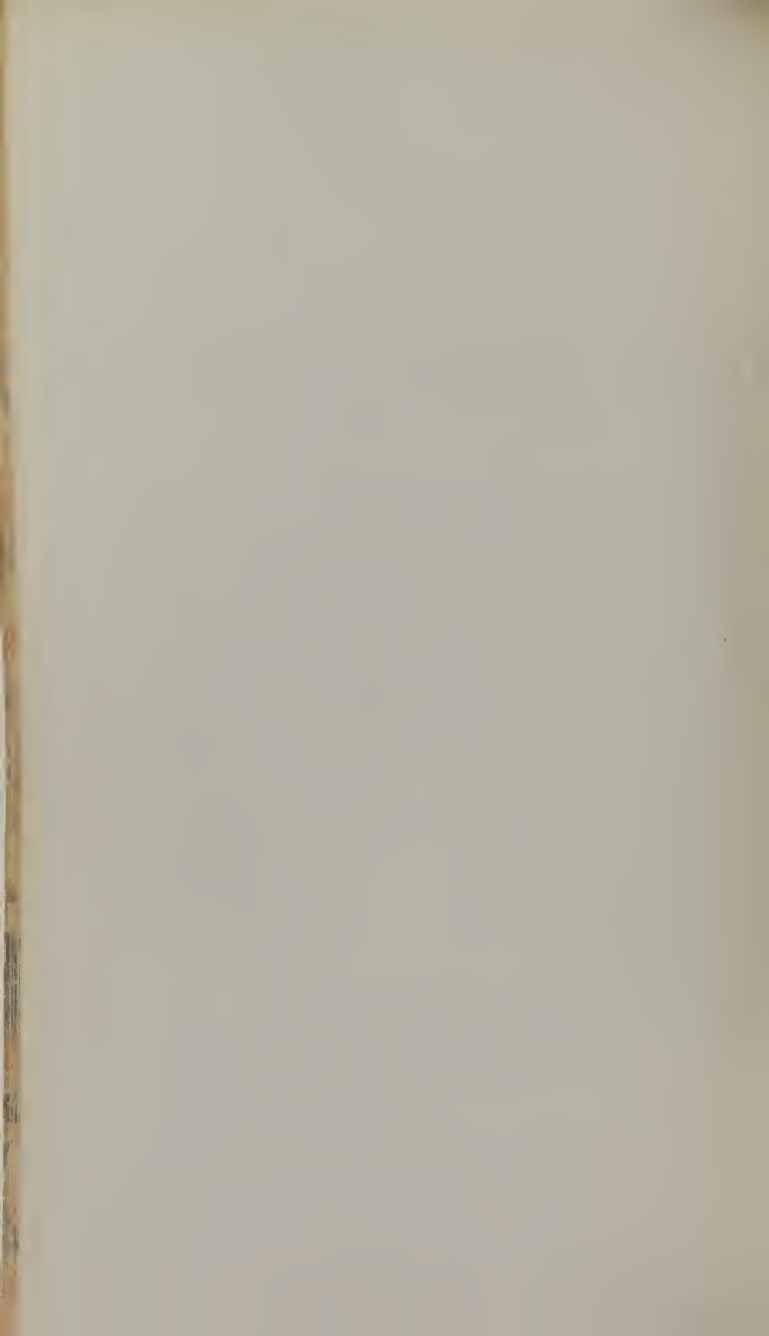
He was taken to the 5th Corps Hospital, and four days subsequently was sent in an ambulance to Belle Plain, and thence to Washington, where he was admitted to Judiciary Square Hospital. There was no symptom of peritonitis at any time, and the wound gave little trouble, except from the rather copious suppuration attending it. In the latter part of July, 1864, Sergeant Corson was ordered to the headquarters of his regiment, at Fort Preble, Maine. On August 29th, he was discharged from service. On October 10th, 1864, he was appointed an Hospital Steward, and was assigned to clerical duty in the Office of the Surgeon General. At this date (December 14th, 1865,) the entrance and exit wounds are still open. From time to time fragments of necrosed bone escape. It is possible to pass a probe through the track of the wound without causing pain. There is but slight suppuration. The steward's general health is good.

Photographed at the Army Medical Museum,

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GEORGE A. OTIS,

Bvt Lt. Col. and Surg. U. S. V., Curator, A. M. M.



Surgeon General's Office,

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PHOTOGRAPH SERIES No. 121.—*Three Heads of Humeri, excised on account of Gunshot Fracture.*

The Specimen on the left, No. 994, A. M. M., is from a successful secondary operation by Asst. Surgeon C. Wagner, U. S. A. Private Robert C——, 4th N. Y. Vols., aged 28 years, was wounded at the battle of Fredericksburg, December 13th, 1862, by a musket ball, which shattered the head of the left humerus and lodged in the axilla. He was sent to the General Hospital at Point Lookout, Md., and, on January 17th, 1863, when he had sufficiently rallied from a severe chronic diarrhoea, the head of the humerus was removed through a V shaped incision, and the ball was extracted. The wounds healed in about eight weeks, and the patient was discharged from service April 10th, 1863, with a useful arm. The case is recorded in Surgical Records, S. G. O., Excisions, Vol. I, p. 11.

The Specimen in the middle of the Photograph, No. 451, A. M. M., is from a successful intermediate operation of excision, performed at Frederick, Md., October 4th, 1862, by Dr. J. H. Peabody. The subject of it, Private James L. H——, Co. I, 27th Indiana Vols., was wounded at Antietam, Sept. 17th, 1862, by a conoidal musket ball, which entered three inches to the right of the sternum, between the first and second ribs, passed obliquely backwards and outwards, and made its exit an inch and a half below the acromion, at the external margin of the scapula. At the time of the operation, there was much constitutional disturbance, and the shoulder was swollen and extremely painful. The operative method was by a single vertical incision. The humerus was first sawn through the surgical neck; but the bone being denuded lower down, a second section was made. The wounds were entirely healed in six weeks, and the patient was discharged from service, December 17th, 1862, with a "tolerably useful arm and forearm." See Surgical Records, S. G. O., Excisions, Vol. I, p. 8.

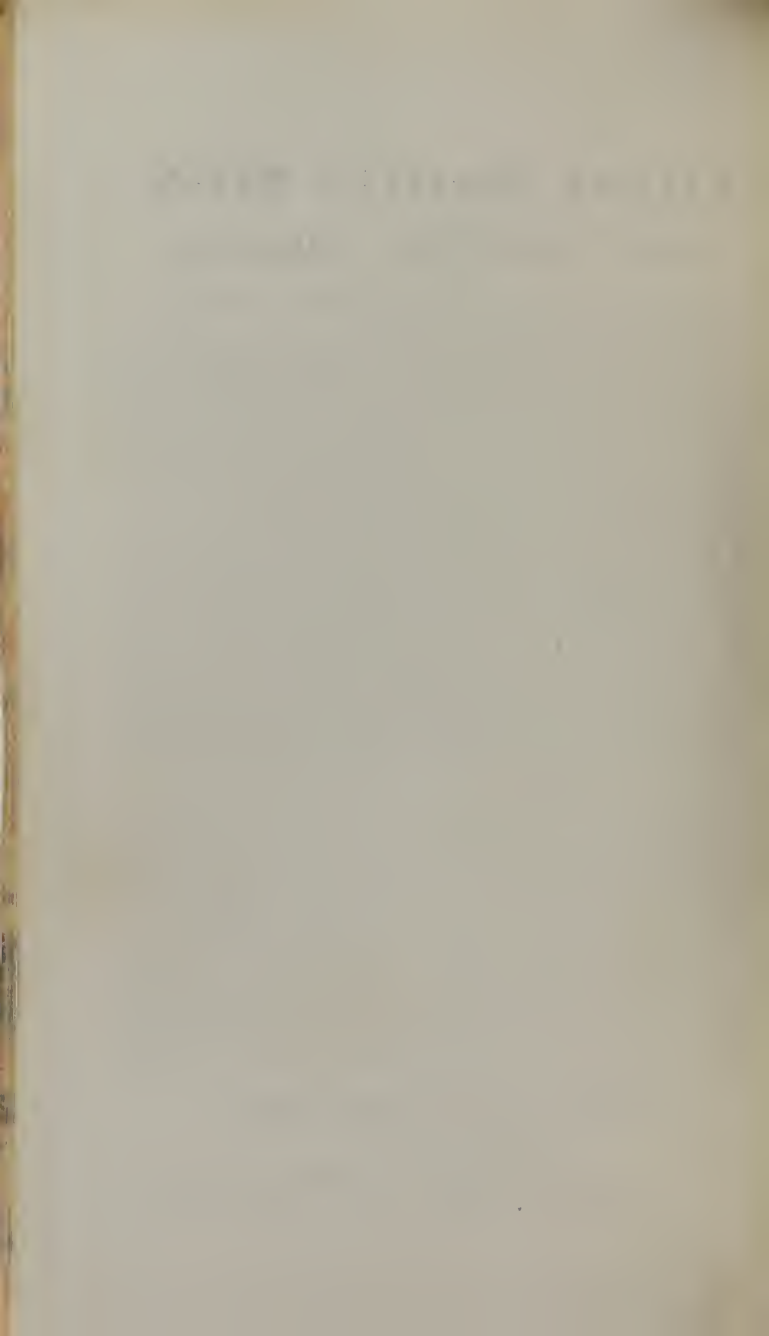
The Specimen on the right, No. 10, A. M. M., represents the extent of the injury in the case of Private William V——, Co. E. 9th Mass. Vols., aged 22 years. He was wounded at Malvern hill, Va., July 1st, 1862, by a conoidal musket ball, which entered the outer side of the left shoulder and passing obliquely upwards shattered the head of the humerus and carried away the tip of the coracoid process. On July 18th, Surgeon R. H. Coolidge, U. S. Army, excised the head of the humerus, at Epiphany Church Hospital, Washington, D. C., and removed the detached portion of the coracoid. A large abscess below the clavicle was opened. The patient was discharged from service December 15th, 1862. In a letter dated December 25th, 1865, Surgeon General Dale of Mass., reports that this man was employed as a farmer at North Bridgewater, Mass.: that there had been no fistulous openings or other inconveniences since the operation: that the man could put his hand to his head, and that the voluntary movements of the arm were otherwise eminently satisfactory. The case is recorded in Surgical Records, S. G. O., Excisions, Vol. I, p. 3.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt. Lt. Col., and Surg., U. S. V., Curator, A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 122. *Three Heads of Humeri excised for Gunshot Fracture.*

Specimen 2516, of the Surgical Section, A. M. M., consists of the head and two inches of the left humerus, with a conoidal ball impacted in the head, which it has broken into several fragments. Specimen 1715, is from a successful primary operation by Surgeon A. Hard, 8th Illinois Cavalry: Private Martin Francher, Co 1, 8th Illinois Cavalry, was wounded in a skirmish near Rochelle, Virginia, September 23, 1863, by a conoidal ball, which perforated the surgical neck of the left humerus, fracturing the articular surface. He was taken to Culpepper, Virginia, nearly thirty miles, the next day, and excision was performed through a longitudinal incision in the deltoid muscle. The wound healed rapidly, and the patient was discharged from the service on April 6, 1864. Specimen 2625 shows the head and three and a half inches of the shaft of the left humerus excised for comminuted fracture of the surgical neck. The ball is lodged in the bone; the epiphysis is not implicated. It is believed to be from the case of Private John Trombly, Co. H, 1st Michigan Volunteers, who was wounded at the battle of the Wilderness, May 5, 1864, and who underwent excision on the same day, at the 5th Army Corps Hospital, the operation being performed by Surgeon Jacob Ebersole, 19th Indiana Volunteers. Trombly was afterwards treated in Harewood Hospital, and was discharged November 15, 1864. His forearm was in good condition; but he had little control over the muscles of the arm. With an appropriate apparatus, supplied by Dr. E. D. Hudson, his limb subsequently became very useful.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 123. *Three Heads of Humeri, Excised for Gun-shot Fractures.*

The specimen on the left, 3954, Surgical Section, is from a successful primary operation by Assistant Surgeon R. F. Weir, U. S. Army. The patient, private Simeon Cole, Co. G, 106th New York Volunteers, aged nineteen years, was wounded at Monocacy, Maryland, July 9, 1864. The ball shattered the surgical neck of the left humerus. The excision was performed at Frederick, Maryland, on July 11, 1864, through a straight incision. The case progressed admirably, and on June 13, 1865, the patient was discharged from service. In January, 1865, he was last heard from. He could raise his hand to his forehead, lift a bucket of water from the floor to a chair, and move his arm forward and backward about twenty degrees. Specimen 1180 represents the extent of the injury in the case of private George Riggs, Co. E, 12th New Jersey Volunteers, who was wounded at the battle of Chancellorsville, Virginia, May 3, 1863. A musket ball entered over the right clavicle and made its exit over the surgical neck of the right humerus. The excision was performed at Washington, D. C., on the 25th day of May, 1863, by Assistant Surgeon C. A. McCall, U. S. Army. The patient recovered and was discharged from service November 7, 1863. The Specimen on the right, 2595, is from a successful secondary operation by Acting Assistant Surgeon J. H. McClellan. Private Charles Naylor, Co. I, 11th New Jersey Volunteers, was wounded at Chancellorsville, Virginia, May 3, 1863, by a musket ball, which carried away the posterior portion of the head of the left humerus. The excision was performed at Philadelphia, August 16, 1863. The patient recovered and was transferred to the Veteran Reserve Corps on February 25, 1864.

Photographed at the Army Medical Museum.

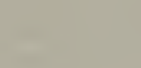
BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Be't Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.

THE HISTORY OF THE
CITY OF BOSTON
FROM 1630 TO 1800

By
JOHN B. HENNING



Published by
JOHN B. HENNING

1800

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 124. *Two Heads of Humeri excised on account of Gunshot Fractures.*

The specimen on the left, 387, Surgical Series, is from a successful secondary operation by Acting Assistant Surgeon S. D. Gross. Private Freeman Snow, Co. C, 37th New York Volunteers, was wounded at Glendale, Virginia, June 30, 1862, by a musket ball, which fractured the shaft of the right humerus in its upper third. He was taken prisoner, sent to Richmond, Virginia, exchanged, and on July 27 admitted to the Fourth and George Streets Hospital at Philadelphia, where the excision was performed on August 1, 1862. The wound discharged freely for several weeks, but healed kindly, and on October 20, 1862, the patient was discharged with a useful arm. The specimen on the right is from a successful primary operation performed by Assistant Surgeon H. L. W. Burritt, U. S. Volunteers, at Knoxville Tennessee. Private George Howe, Co. F, 10th Michigan Cavalry, was wounded at Flat Creek Bridge, Tennessee, August 24, 1864, by a conoidal ball, which fractured the upper third of the right humerus, involving the shoulder joint. The excision was performed on August 26, through a single straight incision. The patient was feeble from profuse hæmorrhage and reacted slowly, but improved gradually. On September 12, healthy granulation had commenced, and on September 30, the wound was nearly closed. He was discharged from service on May 2, 1865, having good use of the forearm of the injured side.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 125. *Heads and Fragments of Heads of Humeri.*

The specimen on the left, 1683, consists of fragments of the head of the right humerus, excised by Assistant Surgeon William Thompson, U. S. Army, twelve weeks after injury. Corporal Thomas McCulley, Co. B, 62d Pennsylvania Volunteers, was wounded at the battle of Chancellorsville, Virginia, May 3, 1863, by a conoidal ball, which entered the left eye, passed through the antrum of Highmore and hard palate, fractured the right side of the inferior maxilla, entered the right shoulder near the coracoid process, passed through the head of the humerus and emerged at the posterior angle of the axilla. The excision was performed at the Douglas Hospital, Washington, D. C., on the 29th of July. For three weeks the patient was fed by means of a stomach tube. The wounds healed with the exception of a sinus leading to a sequestrum at the inner aspect of the shaft of the humerus, a few inches below the shoulder joint. The patient was transferred to Pittsburg, Pennsylvania, and on July 9, 1864, returned to his regiment, to be mustered out of service. Specimen 2002, was from a successful intermediate excision. Sergeant John Gray, Co. F, 69th Pennsylvania Volunteers, was wounded at Mine Run, Virginia, November 29, 1863, by a conoidal ball glancing around the anterior portion of the head of the left humerus. The operation was done at the Fairfax Seminary Hospital, on December 25, 1863. The wound healed rapidly and the patient was discharged from service, March 5, 1864. The third specimen, No. 3691, was contributed by Surgeon H. Culbertson, U. S. Volunteers. It represents the head and one inch of the shaft of the humerus in a various condition. Private William B. Williams, Co. A, 2d Wisconsin Volunteers, was wounded at the battle of the Wilderness, May 4, 1864, by a conoidal ball, which fractured and dislocated the head of the right humerus. The excision was performed by the contributor at the Harvey Hospital, Madison, Wisconsin, on the 20th of June. The long tendon of the biceps and that of the pectoralis major with their attachments to the humerus were preserved. The wound was closed with wire sutures and the arm secured by the patient's side. The incision healed rapidly by first intention, and the patient was discharged from service on July 27, 1864. The specimen on the right, No. 2170, represents the extent of the injury in the case of Julius Sachse, 1st Sergeant, Co. K, 2d Missouri Volunteers, aged 35 years. He was wounded at the battle of Chickamauga, September 19, 1863, by a conoidal ball, which fractured the head and neck of the right humerus. On September 25, he was admitted to Hospital No. 1, Nashville, Tennessee, and on November 10, Assistant Surgeon Charles J. Kipp, U. S. Volunteers, excised the head and a portion of the shaft of the humerus by a straight incision four inches in length. The operation was followed by severe inflammation. The discharge from the wound was profuse and very fetid. In December the patient had a severe rigor, followed by violent reaction; the entire arm became tumified, hot and swollen. The inflammation subsided at the end of the month, and on the 15th of January 1864, the wound had nearly healed. The arm is shortened one and a half inches, is little deformed and admits considerable lateral motion. Sachse was discharged from service on July 11, 1864.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 126. *Two Heads of Humeri excised for Gunshot Fractures.*

Specimen 630 Surgical Section, Army Medical Museum, is the head and nearly three inches of the shaft of the left humerus fractured by a conoidal ball, which lodged at the line of excision. Assistant Surgeon George M. McGill, U. S. Army, who contributed the specimen, was unable to give the history of the case. The specimen on the right, 2260, exhibits the head and nearly four inches of the shaft of the left humerus, excised for a severe fracture at the surgical neck. Sergeant George F. Cleaver, Co. L, 3d Indiana Cavalry, was wounded near Knoxville, Tennessee, on the 20th day of February, 1864. The excision was performed by Surgeon A. M. Wilder, U. S. Volunteers, on the same day. The patient gradually improved until March the 10th, when the wound ceased to discharge pus; a slight chill with vomiting supervened, typhoid symptoms ensued and death took place on March 11, 1864.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 127. *Two Examples of Excision of the Elbow Joint.*

Specimen 3466, is from a secondary operation by Acting Assistant Surgeon G. W. Fay. Private A. N. Perkins, Co. K, 2d Connecticut Heavy Artillery, was wounded at Cold Harbor, Virginia, June 1, 1864, by a conoidal ball, which entered the external condyle of the left humerus and lodged in the joint. The excision was performed at the Patterson Park Hospital, Baltimore, Maryland, on July 16. Two and a half inches of the lower extremity of the humerus, one inch of the radius and two inches of the ulna, including the olecranon were removed. On August 1, the external wound was nearly closed, and the arm could be moved at nearly right angle without pain. August 3, chills and diarrhæa supervened; August 9 the patient complained of pain in his right chest and he died on August 30 with pleuro-pneumonia. The specimen on the right, 3615, represents the extent of injury in the case of Corporal Perry Long, Co. D, 3d New Hampshire Volunteers, who was wounded at Bermuda Hundred, Virginia, June 16, 1864, by a conoidal ball, which fractured the olecranon. He was sent to Mower Hospital, Philadelphia. The articular surfaces had become necrosed. On July 12, Acting Assistant Surgeon W. P. Moon excised the lower extremity of the right humerus, one inch of the radius, and one and a half inches of the ulna. The patient died on August 3, 1864, from exhaustion.

Photographed at the Army Medical Museum.

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PHOTOGRAPH SERIES, No. 128. *Consolidated Gunshot Fracture of the Middle Third of the Right Femur.*

Private Charles Quail, Co. A, 4th Vermont Volunteers, aged 32 years, was wounded at the battle of the Wilderness, Va., May 6th, 1864, by two musket balls, one of which shattered the middle third of the right femur, and the other fractured the right humerus. He was removed to Fredericksburg, whence he was transferred to Armory Square Hospital, Washington, D. C., May 28th, 1864. By the end of June the fractures were sufficiently united to admit the patient to leave the hospital on a furlough. On September 8th, 1864, he was transferred to Sloan Hospital, Montpelier, Vt. On the 31st of December the report states that his wounds were entirely closed. On March 14th, 1865, he was discharged the service, with two inches shortening, and some eversion of the leg, and with but slight deformity of the arm. The photograph is enlarged from a card picture forwarded by Surgeon Henry Janes, U. S. V.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

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PHOTOGRAPH SERIES. No. 129. *Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Corporal Erastus Worthen, Co. B, 2d Vermont Cavalry, aged 25 years, was wounded at the battle of the Wilderness, Va., May 5th, 1864, by a conoidal ball, which comminuted the upper third of the right femur. He was removed to Fredericksburg, and thence to the 1st Division Hospital at Alexandria; thence, on February 26th, to the 2d Division Hospital, Alexandria, and, finally, to the Sloan Hospital, Montpelier, Vt., where he was admitted on March 18th, 1865. The fracture was treated without extension. On June 24th, 1865, the patient was discharged from service, the limb being shortened three inches, with considerable angular deformity and eversion. Sinuses leading to diseased bone were still scantily discharging a thin pus. The photograph is enlarged from a card picture forwarded by Surgeon Henry Janes, U. S. V.

Photographed at the Army Medical Museum,

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Surgeon General's Office,

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PHOTOGRAPH SERIES, No. 130. *Consolidated Gunshot Fracture of the Middle Third of the Right Femur.*

Private William D. Gilbert, Co. C, 6th Vermont Volunteers, aged 50 years, was wounded at the battle of the Wilderness, Va., May 5, 1864, by a conoidal musket ball, which entered a little below the middle of the thigh, and made its exit at about the same level of the posterior external surface of the thigh. He was removed to Fredericksburg, and thence, on the 26th of May, to the 1st Division General Hospital, Alexandria, Va., where the fracture was treated in a straight position, with moderate extension. On February 26th, 1865, the patient was transferred to the 2d Division Hospital at Alexandria, and on March 18, to Sloan Hospital, at Montpelier, Vt. Here a number of necrosed fragments of bone were removed. On September 25th, 1865, the wounds were still discharging moderately. The patient was then able to move about on crutches, and to bear about half his weight on the fractured leg. On October 12th, he was discharged from the service, with three inches shortening of the limb, and awkward inversion of the leg. The photograph is enlarged from a card picture forwarded by Surgeon Henry Janes, U. S. V.

Photographed at the Army Medical Museum,

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PHOTOGRAPH SERIES, No. 131. *Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Sergeant Rufus M. Pray, Co. K, 3d Vermont Volunteers, aged 23 years, was wounded at the battle of Cedar Creek, Va., October 19th, 1864, by a conoidal musket ball, which fractured the upper third of the right femur, without extensive splintering. He was treated at the Sheridan Field Hospital at Winchester, Va., by rest, with moderate extension. The fracture united with great rapidity. On December 14th, he was removed to Frederick, Md.; the wounds were then closed, and the fracture was apparently firmly consolidated. On January 17th, 1865, he was transferred to Sloan General Hospital, Montpelier, Vt. The injured limb was shortened three inches, and there was slight angular deformity. The patient was discharged from the service May 8th, 1865. The photograph is enlarged from a card picture forwarded by Surgeon Henry Janes, U. S. V.

Photographed at the Army Medical Museum,

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PHOTOGRAPHS NOS. 132 AND 133. *Amputation of both Thighs for Gunshot Injury.*

Private Columbus G. Rush, Co. C, 21st Georgia Regiment, was wounded March 25, 1865, in an assault on Fort Steadman, in the lines before Petersburg, Virginia, by a fragment of shell, which laid open the right knee-joint, and shattered the upper third of the left tibia, and produced great laceration of the soft parts of the left leg. He was made a prisoner, and four hours after the reception of the injury, he was placed under chloroform and both thighs were amputated, by the antero-posterior flap method, at the lower thirds, by Surgeon D. W. Bliss, U. S. V. The patient was removed to the base hospital at City Point, and thence, on May 17, 1865, to Lincoln Hospital, at Washington. In August, 1865, he was sent to St. Luke's Hospital, New York, and on February 22, 1866, he was furnished by subscription with artificial limbs, adapted by Dr. E. D. Hudson. With the aid of two canes he was enabled to walk about the wards of St. Luke's. His residence is at Atlanta, Georgia. His appearance while at Lincoln Hospital is shown in Photographs of Surgical Cases, S. G. O., Vol. 3, No. 36.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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PHOTOGRAPH SERIES No. 134.—*Recovery after Amputation of the Right Thigh, the Leg having been carried away by a Cannon Ball.*

Captain Charles T. Greene, A. A. G., U. S. V., aged 22 years; had his right leg carried away by a cannon ball at Ringgold, Ga., November 27th, 1863. The knee-joint was opened. As soon as he had partly recovered from the shock, chloroform was given, and amputation was performed at the lower third of the thigh by the circular method. The stump healed very rapidly and recovery was complete in about two months. In May, 1864, an artificial limb was adapted, and Captain Greene resumed his duties as a staff officer.

Photographed at the Army Medical Museum,

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Bvt. Lt. Col., and Surg., U. S. V., Curator, A. M. M.

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PHOTOGRAPH SERIES No. 135.—*Successful Blepharoplastic Operation.*

Lieut. Adam Miller, 2d Mass. Vols., aged 23 years, was wounded August 9th, 1862, at the battle of Cedar Mountain, by an elongated musket ball which entered below the right orbit, and traversing the nasal fossæ, emerged through the left orbit destroying the globe of the left eye, and lacerating the left lower eyelid. He was made a prisoner and taken to an hospital at Charlottesville, Va., where his wound ultimately cicatrized with great deformity. Having been exchanged, he entered the New York Eye Infirmary, and on April 10th, 1863, a plastic operation was performed by Dr. Henry B. Sands, for the restoration of the eyelid. The operation was eminently successful, and on April 22d, 1863, the parts were sufficiently healed to permit the insertion of an artificial eye. Although the lachrymal sac and puncta were destroyed, little inconvenience was experienced from stillicidium. Lieut. Miller was subsequently transferred to the 7th Regiment Veteran Reserve Corps. The photograph was taken in April, 1866.

Photographed at the Army Medical Museum,

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PHOTOGRAPHS NOS. 136 AND 137. *Successful Secondary Amputation at the Left Hip-Joint.*

Private George W. Lemon, Co. C, 6th Maryland Volunteers, aged thirty years, was wounded at the battle of the Wilderness, May 5, 1864, by a musket ball which shattered the left femur at the junction of the upper and middle thirds. He was left upon the field until removed by the enemy to a neighboring temporary hospital. On May 13th, this hospital fell into the hands of the Union army, and Lemon was transported to Alexandria, Virginia. He was in a pitiable condition, suffering from diarrhoea and bed sores as well as from the constitutional disturbance produced by the fracture of the femur. Apparently no attempt had been made to keep the limb in position. After the patient's admission to the Third Division U. S. A. General Hospital at Alexandria, and the employment of suitable dressings and medicines, his general condition was somewhat improved, but the suppuration from the wound in his thigh was copious, and the fractured extremities of the femur were extensively necrosed. Notwithstanding a careful supporting regimen his strength gradually failed, until in the autumn of 1865 seventeen months after the reception of the wound, operative interference of some sort appeared imperative. Accordingly, Surgeon Edwin Bentley, U. S. V., in charge of the Alexandria Hospital, decided to amputate at the hip-joint. The operation was performed by Dr. Bentley by the antero-posterior flap method, on October 12, 1865. On November 15th, Dr. Bentley reported that the ligatures had come away and that the wound was granulating kindly. At the end of January, 1866, cicatrization was complete, and a colored drawing of the patient was made by Mr. Baumgras, one of the artists of the Army Medical Museum. (Surgical Series of Drawings, Surgeon General's Office, No. 89). On January 31, 1866, the patient was transferred to Harewood Hospital, Washington, D. C. where a plaster cast of the perfectly sound stump was prepared. (Specimen 4167, Army Medical Museum, Plaster Cast 313). A photograph of the patient was also taken. (Photograph Series Nos. 136 and 137, Army Medical Museum). On February 3, 1866, Lemon was discharged the service of the United States at his own request. The exarticulated femur is preserved at the Army Medical Museum, (Specimen No. 4386).

Photographed at the Army Medical Museum.

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PHOTOGRAPH, No. 138. *Recovery after Penetrating Gunshot Wound of the Abdomen, with Faecal Fistula.*

Lieutenant J. Edmund Mallette, Adjutant of the 81st New York Volunteers, was wounded at the battle of Cold Harbor, Va., June 3, 1864, by a musket ball which entered three inches to the left of the umbilicus, and made its exit a little to the right of the spinal column. He was admitted to the Armory Square Hospital, at Washington, on June 6, 1864. There was a copious faecal discharge, and the evidence of an extensive opening of the descending colon was conclusive. At first there was nearly complete paraplegia, which gradually amended, and disappeared in August, 1864. Tenderness and abdominal pain persisted until the latter part of September, 1864, and undigested food from time to time escaped through the anterior orifice of the wound. On September 27, Lieutenant Mallette was transferred on a litter to his home in Oswego, New York. Shortly afterwards a suspender button was discovered in the track of the wound and was extracted by Acting Assistant Surgeon C. P. P. Clarke. The wound was still discharging October 29, 1864, when the patient was honorably mustered out of service. In December, 1864, the wound finally healed. In December, 1866, Mr. Mallette was in excellent health.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Major and Ass't Surg., U. S. A., Curator, A. M. M.

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PHOTOGRAPHS NOS. 139, 178, 179 AND 292. *Partially Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Private George Ruoss, Co. G, 7th New York Volunteers, aged twenty-seven years, was wounded in an engagement at the South Side Railroad, near Petersburg, Virginia, on March 31, 1865, by a conoidal musket ball, which struck the anterior and outer aspect of the right thigh, about three inches below the great trochanter, and, passing inwards and a little downwards, comminuted portions of the upper and middle thirds of the femur, and emerged posteriorly, about the middle of the gluteal fold. He was taken to the Base Hospital at City Point, and on April 6th, was transferred to Campbell Hospital at Washington. On July 8th, he was removed to Stanton Hospital, and, on September 12th, to Harewood Hospital. On his admission to Harewood, he was able to sit up, and the constitutional condition was tolerably good. The fracture had united with great deformity; there were several fistulous orifices, through which fragments of necrosed bone were extracted almost daily. On May 1, 1866, Ruoss was transferred, on the closure of Harewood, to the Post Hospital at Washington. On June 8th, he was etherized, and Assistant Surgeon W. Thompson, U. S. A., made a V shaped incision at the upper and outer part of the thigh, and removed several fragments of diseased bone. September 31, 1866: the wound has nearly healed; there are three sinuses, (two on the upper, and one on the lower surface,) which lead to what is evidently necrosed bone. December 31, 1866: Sinuses still open and discharging, general condition feeble; there is great deformity, and about five inches shortening of the limb, with almost complete ankylosis of the knee joint. The photograph was taken in July, 1867. A communication from Assistant Surgeon John Brooke, U. S. A., dated July 6, 1868, furnishes the following additional information:—On taking charge of the patient in November, 1867, he found the limb in the same condition as that previously described, except that a collection of pus, which had formed on the inner aspect of the thigh, just above the knee, had been opened, and that there was a sinus connecting with the seat of fracture. This sinus, with the openings above mentioned, continued until death. The patient was extremely feeble, greatly emaciated, and suffered much from diarrhea and anorexia. These symptoms continued until the patient's death, which occurred June 27th, 1868. At the autopsy, the liver was found enormously enlarged, weighing ten pounds and ten ounces; and the right lung contained a small mass of calcareous matter. Portions of the tibia and fibula, and the femur with the os innominatum and patella attached, were removed. The femur, imperfectly united with great displacement and a deposit of foliaceous callus, shows that extensive periostitis had taken place. The upper portions of the tibia and fibula and the patella, also, show similar pathological changes. The specimen is No. 5450 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH, No. 140. *United Gunshot Fracture of the Upper Third of the Left Femur.*

Private Timothy F. Pridgen, Company K, 18th North Carolina (rebel) Regiment, aged twenty-two years, was wounded and captured at Deep Bottom, Virginia, on July 28, 1864. A conoidal musket ball, striking the left femur at the junction of the upper and middle thirds, fractured the bone, but without extensive comminution. He was sent to Lincoln Hospital, at Washington, whence he was transferred, on August 14, 1865, to Stanton Hospital, and, on September 13, to Harewood Hospital. When received at Harewood he was able to move about, the fracture having firmly united, though the wound was still open and the discharge indicated the presence of necrosed bone. On November 9, 1865, with his wounds closed and every prospect of a useful limb, he was transferred to the Provost Marshal of the Department of Washington. He took the prescribed oath of allegiance, and was furnished transportation to Elizabethtown, North Carolina, on the same day.

The negative was taken at Harewood Hospital, by direction of Surgeon R. B. Bontecou, U. S. V.

Photograph printed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Be't Major and Ass't Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office.
ARMY MEDICAL MUSEUM.

PHOTOGRAPH, No. 141. *United Gunshot Fracture of the Upper Third of the Right Femur.*

Charles Last, Musician, 125th Illinois Volunteers, aged thirty-five years, was shot by a sentinel at Washington, D. C., on June 7th, 1865. The projectile, a conical musket ball, fired at short range, entered the external aspect of the upper third of the right thigh, and passing forwards, inwards, and downwards, comminuted the femur. The patient was treated at Stanton Hospital, by a long straight splint with extension and counter extension. On September 13th, he was transferred to Harewood Hospital, convalescent, and able to move about on crutches. On October 6th, 1865, he was discharged from service, having every prospect of a useful limb.

Photograph printed at the Army Medical Museum.

[Negative contributed by Brevet Colonel R. B. Bontecou, U. S. V.]

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Major and Ass't Surg, U. S. A., Curator, A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH, 142. *Consolidated Gunshot Fracture of the Middle Third of the Left Femur.*

Captain R. T. Shillinglaw, 79th New York volunteers, was wounded at the battle of Bull Run, Va., July 21, 1861, by a conoidal ball which obliquely fractured the middle third of the left femur. He was made a prisoner, and removed to Richmond, where the fracture was treated for one week at the Alms House Hospital by a Desault splint, and for twelve weeks subsequently by Smith's Anterior Splint. On December 31, 1861, he was exchanged. For nearly a year after the injury there was a slight suppuration, with the occasional elimination of bits of necrosed bone. From November, 1862, to February, 1863, Captain Shillinglaw served in the field as Acting Aid de Camp to General Wilcox. He was transferred to the Veteran Reserve Corps in August, 1863, and served in Washington till he was honorably mustered out on August 2, 1865. Beside the fracture of the femur, he incurred three other wounds at the first battle of Bull Run; a large pistol ball remained lodged near his right elbow for eight months; he had another wound in his hand, and yet another, a flesh wound, on one of his extremities. Captain Shillinglaw visited the Museum in June, 1866, when this photograph was taken. The injured limb was shortened nearly three inches, but he walked briskly and without a limp. He used no cane, and experienced little or no inconvenience from his wounds. On February 2, 1869, Captain Shillinglaw visited the Army Medical Museum in good health.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office,
ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES No. 143.—*Recovery after Excision of the Head of the Left Humerus for Gunshot Fracture.*

Private Stephen C. Foster, Co. D. 56th Mass. Vols., aged 21 years, was wounded at the battle of North Anna River, Va., May 24th, 1864, by a musket ball, which fractured the upper third of the left humerus. On the following day, the head and a portion of the shaft of the left humerus was excised on the field, and on May 29th, the patient was admitted to Lincoln Hospital, Washington, D. C. On February 9th, 1865, the incision was perfectly healed and Foster was in good health. At this date the photograph was taken, by direction of Surgeon J. C. McKee, U. S. A. The patient was transferred to General Hospital, at Readville, Mass., on March 7th, 1865, and was discharged the service June 19th, 1865.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt. Lt. Col., and Surg., U. S. V., Curator, A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES, No. 144. *Successful Primary Excision of the Head and three inches of the Shaft of the Left Humerus for Gunshot Fracture.*

Sergeant Jacob P. Yakey, Co. D, 125th New York Volunteers, aged 21 years, was wounded at the battle before Petersburg, Va., June 22d, 1864, by a conoidal ball, which entered the left shoulder at the anterior edge of the deltoid muscle, and fractured the humerus. On the same day Surgeon Wm. S. Cooper, 125th New York Volunteers, excised the head and three inches of the shaft of the left humerus through a V shaped incision, the patient being under chloroform. The case progressed well, and on September 17th, Sergeant Yakey was furloughed, and subsequently discharged from the service. In January, 1865, he was admitted to General Hospital at Troy, N. Y., as a contract nurse. He had an abscess of the left arm, which was incised by Surgeon Hubbard, U. S. Vols., and a small fragment of necrosed bone was removed. After this the wound healed firmly. Yakey resides in Troy, N. Y. He has a useful arm.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.



Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES. No. 145. *Successful Intermediate Excision of the Head and two and a half inches of the Shaft of the Right Humerus.*

Private Adolph Zirsse, Co. A, 16th Michigan Volunteers, aged 32 years, was wounded at the battle of Peeble's Farm, September 30th, 1864, by a musket ball, which fractured the upper third of the right humerus. On October 3d, while under chloroform, an excision was made of the head and two and a half inches of the shaft of the humerus. He was admitted to Lincoln Hospital, Washington, D. C., October 8th, 1864. The patient improved very rapidly, and on December 26th the cicatrix was clean and free from discharge. Zirsse was transferred to Detroit, Mich., January 18th, 1865, and was discharged the service June 2d, 1865. The photograph was taken January 10th, 1865, by direction of Assistant Surgeon J. C. McKee, U. S. A. At that date he had perfect use of his hand, but little control over the movements of the arm and forearm.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES, No. 146. *Successful Intermediate Excision of the Head and three inches of the Shaft of Right Humerus for Gunshot Fracture.*

Private Samuel T. Tineker, Co. D, 14th Indiana Volunteers, was wounded at the battle of the Wilderness, May 6th, 1864, by a musket ball, which entered the posterior surface of the right humerus, and passed forwards, making its exit at the anterior surface, fracturing the head of the humerus and the anterior and posterior borders of the glenoid cavity. On May 30th he was admitted to Lincoln Hospital, Washington, D. C., and on June 1st was etherized, and the head and three inches of the shaft of the humerus were excised by Surgeon J. C. McKee, U. S. A., through a straight incision, commencing at the coracoid process of the clavicle and extending downward five inches. On October 10th, 1864, the parts were entirely healed. The patient was subsequently transferred to the Soldiers' Home, and discharged the service of the United States.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.

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Surgeon General's Office,
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PHOTOGRAPH SERIES, No. 147. *Successful Primary Excision of the Head and three inches of the Shaft of the Right Humerus for Gunshot Fracture.*

Sergeant John B. Yost, Co. A, 4th Pennsylvania Cavalry, aged 23 years, was wounded at the battle of Stony Creek, December 1st, 1864, by a musket ball, which entered posteriorly above the spine of the scapula, fractured the head and surgical neck of the right humerus, and made its exit above the clavicle about its middle third. The following day the patient was placed under chloroform, and Asst. Surgeon Marsh, U. S. A., excised the head and three inches of the shaft of the right humerus, through a longitudinal incision, four inches in length, made on the outer side of the arm. The patient was admitted to Lincoln Hospital, Washington, D. C., January 19th, 1865, where this photograph was taken by direction of Surgeon J. C. McKee, U. S. A. On January 25th, 1865, the wound was entirely healed, and callus had been thrown out in some quantity. The patient was discharged the service on May 6th, 1865.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHS NOS. 112 AND 148. *Successful Excision of the Head of the Left Humerus, followed by Necrosis and Secondary Excision of the remainder of the Humerus and the Upper Extremities of the Radius and Ulna.*

Private John E. F. Cleghorn Co. K, 1st New Jersey Cavalry, aged twenty-seven years, was wounded at Mine Run, Virginia November 27, 1863, by a musket ball, which shattered the head of the left humerus. Three days afterwards the head and a small portion of the shaft were excised, at a field hospital, by Surgeon Henry K. Clark, 10th New York Cavalry. On December 5th the patient was transferred to the 3d Division Hospital at Alexandria, Virginia. On April 28, 1864, he was transferred to Ward Hospital, Newark, New Jersey, the wound being healed, with the exception of a slight fistulous sinus communicating with the sawn extremity of the shaft of the bone. Subsequently the entire shaft and condyles of the humerus became necrosed, and abscesses formed about the elbow. On July 21, 1864, an incision was made along the whole length of the outer aspect of the arm, and the diseased humerus was removed, together with the upper extremities of the radius and ulna. The wound left by this extensive operation healed rapidly, and on October 20, 1864, he was discharged from the hospital and from the service of the United States. In November, 1864, a prothetic apparatus was adapted to the arm by Dr. E. D. Hudson, which enabled the patient to exercise considerable control over the movements of the limb. A communication from the Commissioner of Pensions, dated September 10, 1866, states that this man is a pensioner, his disability being rated equal to the loss of a hand.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office,

ARMY MEDICAL MUSEUM.

PHOTOGRAPH SERIES, No. 149. *Successful Primary Excision of four inches of the Upper Third of the Shaft of the Right Humerus for Gunshot Fracture.*

Private John Kelly, Co. G, 5th U. S. Cavalry, aged 40 years, was wounded at the battle of Winchester, Va., September 19th, 1864, by a conoidal ball, which fractured the upper third of the right humerus. On the following day Surgeon Newton excised four inches of the shaft of the right humerus, through a linear incision, six inches in length, through the belly of the biceps. The patient was admitted to U. S. Hospital at Frederick City, Md., on January 2d, 1865. He was transferred to Carlisle Barracks, Pa., February 23d, 1865, and from thence to Lincoln Hospital at Washington, where he was admitted June 18th, 1865. The wound was entirely healed. This photograph was then taken by direction of Surgeon J. C. McKee, U. S. A. The patient was discharged the service June 29, 1865. The arm was slightly atrophied, and the muscles and ligaments thickened, impairing the action of the arm; atrophy of the biceps also diminished the control over the forearm.

Photograph Printed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst. Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 150. *Resection of the Shaft of the Humerus for Gunshot Fracture.*

In the assault on the lines before Petersburg, April 2, 1865, Private John Lemmel, 5th Wisconsin Volunteers, aged forty years, had his left humerus shattered by a conoidal musket ball, the vessels and nerves escaping injury. Five hours afterwards a formal excision of three inches of the shaft was made at a field hospital by Surgeon Wilbur, all of the comminuted fragments being removed. The arm was then placed on an angular splint, and the patient was sent to City Point and thence to Washington. On April 3, he was admitted to Lincoln Hospital. The wound healed rapidly, and on June 2, 1865, when the photograph was taken, by order of Surgeon J. C. McKee, U. S. Army, it had entirely cicatrized. The patient, however, had little use of his arm or forearm on account of rigidity of the flexors and extensors. He was soon afterwards transferred to David's Island, New York, and discharged from service October 15, 1865. Soon afterwards an apparatus was supplied to him by Dr. E. D. Hudson which materially improved his power of moving the forearm and fingers.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

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PHOTOGRAPH No. 151. *Consolidated Gunshot Fracture of the Upper Thirds of both Femurs.*

First Sergeant William Shakespeare, Co. K, 2d Michigan Volunteers, aged eighteen years, was wounded in action before Jackson, Mississippi, July 11th, 1863, by a conoidal musket ball entering on the outer aspect of the left thigh, in its upper third, causing a compound comminuted fracture of the left femur, emerging externally in the upper third of the right thigh, breaking the right femur in its course. About the same time a conoidal ball shattered the head of the left fibula, and another gave him a flesh wound. While lying on the field he was severely wounded by some missile over the sacrum. He was admitted to the General Hospital of the Ninth Army Corps on the same day, from whence he was transferred to Cincinnati, Ohio, and admitted to Washington Park Hospital on the 12th of August, 1863. Union of the fragments of the left femur had taken place, with about seven inches shortening, the fragments crossing each other at a considerable angle, one of them protruding from the wound. Surgeon Norton, of the Washington Park Hospital, on the 14th of August broke up the temporary union of the fragments of the left femur, extended and dressed the limb. July 15th, 1864, discharged from service. April 2d, 1866: the union is complete; he is now, when standing on the right leg, one and one-quarter inches shorter than when he entered the service, and the left limb is one and three-quarter inches shorter than the right. The left femur is a little straighter than is normal; the left leg can be flexed upon the thigh to about 30°; the foot is contracted, rather stiff, and is sometimes painful. He walks with a light cane rather slowly, and with a halting gait. He suffers considerably from neuralgia, and is not as robust as formerly.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Bvt Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 152. *Consolidated Gunshot Fracture of the Upper Third of the Left Femur.*

Private Henry A. Wiggins, Co. K, 37th Massachusetts Volunteers, was wounded at the battle of the Wilderness, May 6, 1864, by a conoidal musket ball, which struck the left femur at the junction of the upper and middle thirds and produced great comminution. The patient was removed to the Base Hospital at Fredericksburg, where the ball and six or eight large fragments of bone were removed by Acting Assistant Surgeon W. J. Sawin. From Fredericksburg the patient was moved in an ambulance to Acquia Creek, and thence by steamer to Alexandria, Va., and entered the 3d Division Hospital. Here numerous small detached fragments of bone were removed, and the case was reported as an excision of the continuity of the shaft of the femur. But it would appear from the records of the hospital, and from letters of Dr. Sawin and the patient that no formal excision was made. After the usual protracted suppuration in extensively comminuted fractures of the femur, union gradually took place, and, on May 28, 1865, the patient was well enough to be transferred to the Dale Hospital, at Worcester, Massachusetts, near his home. Upon the closure of this hospital, he was transferred, August 28, 1865, to DeCamp Hospital, New York, where, on September 21, 1865, he was discharged from the service of the United States. The injured limb was shortened more than five inches, and the muscles were much atrophied and contracted. On October 20, 1865, he was supplied with an apparatus by Dr. E. D. Hudson, who reported that the patient walked firmly with the aid of a cane. In July, 1866, Wiggins stated that there were three small fistulous orifices in the thigh, and that he had latterly removed a necrosed bit of bone one inch long, being the fifty-fifth fragment of the femur that had been extracted. He added that his weight was 174 pounds at the date of his wounds, had been reduced to 129 pounds, and was steadily decreasing.

Photograph enlarged from a Card Picture.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Major and Ass't Surg., U. S. A., Curator, A. M. M.



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ARMY MEDICAL MUSEUM.

PHOTOGRAPH 153. *Recovery after a Fracture of the Middle of the Shaft of the Left Femur by a Round Musket Ball.*

Private Henry E. Gumbert, aged eighteen years, of an Indiana militia regiment, had the middle of the shaft of his left femur fractured by a round musket ball, at Camp Carrington, Indiana, on May 13, 1864, and on the same day he was admitted to the Indianapolis General Hospital. The fracture was treated in the straight position, and the case went on without any untoward incident, and with such rapidity that union was firm and the wounds were healed on September 5, 1864, when Gumbert was discharged from hospital fit for duty. The limb was shortened an inch and a half, but there was no other deformity. Acting Assistant Surgeon Kitchen, who conducted the treatment, received a letter from Gumbert in January, 1866, stating that he could "run and jump as well as ever." At the same time Dr. Kitchen procured and contributed to the Army Medical Museum the photograph of the case from which this is copied.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.

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PHOTOGRAPHS 154 AND 155. *Successful Double Amputation—
Right Thigh and Left Leg.*

On July 8, 1863, Private Charles N. Lapham, Co. K, 1st Vermont Cavalry, aged 23 years, in a skirmish near Boonsborough, Maryland, was struck by a solid shot, which carried away both legs. The shock was, of course, excessive; but he rallied, and forty-eight hours afterwards, he was placed under the influence of chloroform and the right limb, in which the knee joint was gravely injured, was amputated at mid-thigh, while the left was disarticulated at the knee. Antero-posterior flap operations were done in both instances. He recovered with extraordinary rapidity, inasmuch as on August 25, six weeks after the reception of the injury, the stumps were firmly cicatrized and he was discharged from service. Eleven months afterwards, he was supplied with artificial limbs by Dr. E. D. Hudson. In October, 1864, he wrote from the Poughkeepsie Collegiate Institute, where he was studying, that he could walk well on level ground and ascend and descend a staircase readily; and he contributed the photographs from which these are enlarged.

Photographed at the Army Medical Museum.

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PHOTOGRAPH, No. 156. *Recovery without an Operation, after a Gunshot Fracture involving the Right Acetabulum and Head of the Femur.*

Lieutenant Colonel James C. Strong, 38th New York Volunteers, was wounded at the battle of Williamsburg, Virginia, May 5th, 1862, by a conoidal musket ball, which entered over the right sartorius muscle, about four inches below its origin, and made its exit near the right margin of the lower portion of the sacrum. Surgeon A. J. Berry, 38th New York Volunteers, examined the wound and found that the ball had deeply grooved the head of the femur, and had fractured the upper rim of the acetabulum. A detached fragment of the rim, nearly an inch and a half in length, a part of it covered with articular cartilage, together with portions of clothing, were extracted from the wound. On the 8th of May, the patient was transferred by a steamer from Queen's Creek Landing, to the Hygieia Hospital, at Fort Monroe. Here he remained until the 13th, when he undertook a painful journey of five days, on a litter, and reached his home in Buffalo, New York. The injured limb was semi-flexed and rotated inwards, the head of the femur being dislocated upon the dorsum of the ilium. Any attempt to place the limb in position produced such acute suffering that the effort was abandoned. For ten weeks there was profuse suppuration with burrowing of pus in the thigh and intense pain, with ebullis, profuse perspiration and great prostration, after which a very gradual amendment took place. On December 12, 1862, the patient was removed to Philadelphia, and entered at the Officers' Hospital at Cammack's Woods, where he was able to bear treatment by Buek's method of extension by weights. Here a number of spiculae of bone were extracted or washed from the wound. On January 6, 1863, the patient was discharged from hospital. On June 1, the wounds were nearly closed, and he rejoined his regiment on crutches, and was mustered out with the regiment on June 22, 1863. On September 29, he was appointed Colonel in the Veteran Reserve Corps. He was subsequently brevetted Brigadier General. In July, 1866, when the photograph was taken, Gen. Strong was in good health. His limb was shortened nearly five inches, but by the inclination of the pelvis and extension of the toes he was enabled to walk with surprising ease and activity with or without a cane. The head of the femur was firmly ankylosed on the dorsum of the ilium. The cicatrices appeared sound.

Photographed at the Army Medical Museum,

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GEORGE A. OTIS,

Br't Major and Ass't Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office.

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PHOTOGRAPH NO. 157. *Gunshot Fracture of the Upper Third of the Left Femur united with slight deformity.*

Private Andrew F. Dinsmore, Co. E, 3d Michigan Volunteers, aged 19 years, was wounded at the battle of Fair Oaks, May 31, 1862, by a musket ball, which fractured the upper third of the left femur and lodged. His wound was dressed on the field by Surgeon Bliss, U. S. Vols., and he was removed to the Hygeia Hospital at Fort Monroe. In the middle of June he was transferred to the DeCamp Hospital at David's Island, and was there treated by Acting Assistant Surgeon Root, by moderate extension and counter-extension, and by the removal of numerous detached fragments of bone. By the end of 1862, firm union had taken place, and on April 19, 1863, the wound having healed, Dinsmore was discharged from the service of the United States, having a strong and useful limb, with trivial shortening and deformity. On July 11, 1863, he enlisted in the 2d Battalion, Veteran Reserve Corps, and served three years. From time to time a fistulous orifice would appear in the cicatrix and discharge a small quantity of pus. On December 21, 1866, Mr. Dinsmore was in good health, suffering little or no inconvenience from his injury, though the ball remained in the limb. He is employed as a clerk in the General Land Office.

Photographed at the Army Medical Museum,

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Major and Ass't Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 158. *United Gunshot Fracture through the Trochanters of the Right Femur with trifling deformity.*

Private Philip Sweeny, Co. C, 3d New York Volunteers, was wounded in the affair at Big Bethel, June 10, 1861, by a conoidal musket ball, which shattered the trochanters of the right femur. He was admitted to Hygeia Hospital, Fort Monroe, on June 13, and was treated by Surgeon R. B. Bontecou, U. S. Vols., by moderate extension and dilatation of the wound by sponge tents, in order to facilitate the extraction of primary sequestræ, of which many were removed. Suppuration and exfoliation persisted until March, 1862. In April, there were two severe attacks of erysipelas involving the entire limb, which greatly reduced the patient, but he quickly rallied, and in May was able to run a race on crutches with his wounded companions. He was transferred to Albany in June, 1862; but his name does not appear upon the hospital reports until March, 1863, when he was admitted to the "Ladies' Home" in New York City, where a number of necrosed fragments were removed. On May 25, 1863, he was discharged, being able to walk without a crutch, and the limb being but slightly shortened. He soon afterwards engaged himself as a laborer at an Iron Foundry, in Troy, New York, where he has since worked without intermission. On July 20, 1866, he was examined by Brevet Colonel R. B. Bontecou, who found him in perfect health, the injured limb a trifle shortened, and the knee rather stiff, owing to the destruction of connective tissue about the extensor muscles of the thigh during the suppuration following the erysipelatous attacks, and, doubtless, the formation of adhesions. The knee-joint was in good condition, and had sufficient motion to allow a firm, good gait.

Photograph printed at the Army Medical Museum,

(Negative furnished by Brevet Colonel R. B. Bontecou, U. S. Vols.)

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Major and Ass't Surg., U. S. A., Curator, A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 159. *Stump after a Reamputation at the Left Hip Joint.*

First Sergeant Edwin D. Ulmer, Co. G, 15th New Jersey Volunteers, aged twenty-one years, was wounded at the battle of Cedar Creek, October 19th, 1864, by a conoidal musket ball, which entered the inner face of the left thigh, fractured the bone, and lodged under the skin on the outer side of the limb. The femur was badly comminuted, fissures extending into the knee joint and upwards for seven inches. There was but little hemorrhage at the time of the injury. The ball was readily extracted at the Field Hospital of the First Division of the Sixth Corps, and it was determined to attempt to save the limb. The wounded man was conveyed to Baltimore, and received at Jarvis Hospital on October 24th. The train of symptoms consequent upon gunshot injuries implicating the knee were soon developed. Intense arthritis supervened, with deep dissecting abscesses in the thigh. On November 14th, twenty-six days after the injury, hemorrhage to the extent of twenty-five ounces took place from both orifices, which were in a sloughing condition. The patient was put under ether, and amputation at the middle of the thigh was performed by Acting Assistant Surgeon Edward G. Waters. The patient was very weak and nervous at the time, but he rallied promptly after the operation and convalesced rapidly, and in a few weeks was able to get about on crutches. Yet the stump continued open and painful, and the extremity of the femur was found to be necrosed. In March, 1865, it was found that a cylindrical sequestrum was loose. This was removed on March 8th, by Acting Assistant Surgeon B. B. Miles, with forceps. The patient's general condition rapidly improved after this operation. On May 29th, 1865, he was discharged from the service of the United States, the stump still discharging slightly. On the following day he started for Philadelphia, and, unfortunately, on the journey he fell with violence upon the stump. After this, there was increased suppurating, with deep-seated pain in the stump. On the 22d of January, 1866, fifteen months after the original injury, while dressing the part as usual, a hemorrhage occurred from one of the fistulous openings at the end of the stump, amounting, according to his statement, to at least a pint. On account of this hemorrhage he was admitted into the Pennsylvania Hospital. The usual local remedies were applied to guard against its return; he was put upon a stimulating treatment, with the best diet. The patient's general health improved, and there was no further hemorrhage until about the 15th of February, when the discharge again became mixed with blood. On the 17th, in the hospital amphitheatre, before the clinical class, the patient being etherized, an exploratory operation was made. An incision upon the outer side of the thigh revealed a diseased condition of the bone as high as the neck. Amputation was decided upon in consultation with Drs. Hunt and Agnew. The abdominal tourniquet having been applied, antero-posterior integumentary flaps were dissected up; the femoral artery, which was exposed with some difficulty on account of the hardened and altered condition of the tissues, consequent upon the previous inflammation of the soft parts was then tied. The muscles having then been cut, circularly, close to the pelvis, the head of the bone was readily disarticulated. The aorta was so completely controlled by the tourniquet of Mr. Syme, that no arterial jet was observed during the operation; the loss of blood being very trifling, hardly amounting to three ounces. About sixteen ligatures were applied. The flaps were approximated with adhesive plaster, no sutures being deemed necessary. The subsequent dressings consisted of lint soaked in pure laudanum, until the parts had almost healed, when simple cerate dressing was substituted. The patient was much prostrated by the operation, but reacted well. The discharge was very profuse, and during the first week the edges of the flaps appeared a little sloughy. Under vigorous stimulating treatment and the local application of permanganate of potash in solution he rapidly recovered. No other unfavorable symptoms having occurred, and the ligatures being all away by the end of the second week, two small openings in the stump alone remaining, he left the hospital March 27th, thirty-eight days after the operation, for his home in the northern section of the city. On May 10th, the patient was able to get about town on crutches. On the 20th, he left for New Jersey to fill a situation as telegraph operator. On July 24th, he sent a letter to this office from Milford, New Jersey, announcing that his health was excellent, and a few weeks subsequently he corroborated this statement by transmitting his photograph. On October 27th, 1866, he was supplied with an artificial limb by Clement, of Philadelphia. On June 28th, 1867, Mr. Ulmer wrote to this office that he had never had a day's illness since the hip joint amputation was performed, and had never been in better health than then. He was stouter than ever before, weighing one hundred and seventy-five pounds, or twenty-five more than his average weight when he had both lower extremities. His stump was firm and solid and gave him no pain or inconvenience. He considered his artificial limb an excellent one, and could walk on it "right well," but found it inconvenient at his work, which requires him to sit all day on a high stool. In July, 1867, he was again photographed by Mr. Bell.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.

Surgeon General's Office.
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ARMY MEDICAL MUSEUM.
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PHOTOGRAPH, No. 160. *Amputation of the Right Thigh.*

Private Charles Myer, 5th Connecticut Cavalry, was accidentally wounded, on April 5, 1865, at Alexandria, Virginia, by a musket ball, which shattered the right knee-joint. On the following day his limb was removed, by the circular method, by Surgeon Edwin Bentley, U. S. Vols., at the middle third of the thigh. The after treatment was conducted at the Sickles Hospital, in Alexandria, and presented no incident worthy of remark. In ten weeks the stump was firmly healed, and on July 10, 1865, Myer was discharged from the service of the United States.

Photograph printed at the Army Medical Museum,
BY ORDER OF THE SURGEON GENERAL:
GEORGE A. OTIS,
Br't Major and Ass't Surg., U. S. A., Curator. A. M. M.

Surgeon General's Office, ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 161. *United Gunshot Fracture of the Upper Third of the Left Femur*

Private James C. Houston, Co. G, 25th Ohio Volunteers, was wounded on August 30, 1862, at the second battle of Bull Run, by a musket ball, which shattered the upper portion of the left femur and lodged. He was conveyed to Alexandria, Va., and was admitted to the King street branch of the 3d Division Hospital, on September 4. The limb was treated in the straight position with extension and counter-extension. The hospital records afford no information respecting the progress of the case, but the cicatrices indicated that there must have been protracted suppuration and probably the discharge of bone splinters through several orifices. Recovery was unusually rapid, the man being discharged from service, cured, on January 12, 1863. He was subsequently an employé of the quartermaster department, and performed the laborious duties of a teamster for several years. In the summer of 1866, when the photograph was taken, his general health was excellent; his limb was strong and useful, and but slightly shortened, and except from varices, which affected the uninjured limb almost equally, he suffered from no inconvenience.

Photographed at the Army Medical Museum,

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ARMY MEDICAL MUSEUM.

PHOTOGRAPH 162. *Involucra and Sequestra of a Diseased Femur-Stump.*

Private Henry S. W——, Co. K, 38th New York Volunteers, was struck by a fragment of shell, at the battle of Williamsburg, May 5, 1862, and his right knee was shattered. Primary amputation at mid-thigh was performed on the field. The patient was then sent in an ambulance to the landing at York River, and thence on an hospital transport to the hospital at David's Island, New York. When he was admitted he had diarrhœa, and a bad bed-sore on the sacrum. The end of the femur was necrosed. He was put on a water-bed, and a supporting regimen was ordered. After three or four months, it appeared probable the patient would succumb unless something was done to arrest the exhausting supuration; and it was determined to remove the diseased bone. On October 9, the operation was undertaken by Acting Assistant Surgeon E. B. Root. He first resected an inch of the necrosed extremity of the femur, by means of the chain saw, but, finding that the alteration of the bone extended much higher up, he laid open the flaps and sawed off two inches more of cylinders of double involucra and sequestra. In this stage of the operation the femoral artery was divided; but little blood, however, was lost. Although the limits of diseased action had not been reached, Dr. Root did not consider it prudent to go farther, and the patient was put to bed, when, on recovering from the insensibility induced by sulphuric ether, he vomited obstinately. Nothing allayed the gastric irritability, and the patient died seventy-two hours after the operation. The specimen, forwarded with its history by Surgeon S. W. Gross, U. S. Volunteers, is an interesting example of the formation and death of an involucrum, which in its turn was enclosed by another deposit of osseous material.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

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PHOTOGRAPH 163. *Amputated Portion of Left Femur, with a leaden Ball in the Medullary Canal.*

At the battle of Chancellorsville, on May 3, 1863, Brigadier General Edmund K——, U. S. Volunteers, First Lieutenant, 1st U. S. Artillery, was wounded by two leaden balls from a spherical case shot, which entered the lower part of the left thigh. One of the missiles fractured the femur and was impacted in its medullary canal, the other lodged in the vastus externus. The wounded man was conveyed to Washington on May 5 and, on May 10, Surgeon Basil Norris, U. S. A., amputated the thigh by the circular method. Pyæmia supervened, and death on May 28, 1863. The specimen, contributed by the operator, is one of the few illustrations in the Museum, of the lodging of balls in the medullary cavity of long bones.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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PHOTOGRAPH 164. *Diseased Stump of the Right Femur, amputated in the Middle.*

In the battle of Spottsylvania, May 12, 1864, Private William C——, Co. B, 2d Pennsylvania Cavalry, aged forty years, had his right leg shattered near the knee by a fragment of shell. The soft parts were much torn, and the popliteal artery was divided. It was amputated immediately, near the middle of the thigh by Surgeon Bower. He was then sent to Washington, and admitted, on July 16, to Lincoln Hospital. He was in an exhausted condition, and had no appetite. He utterly refused to take bark or stimulants of any description. The tongue and fauces were covered with aphthæ. There was diarrhœa, from which, in a chronic form the patient had long suffered. He died on July 27, 1864. There was extreme emaciation. At the autopsy but slight lesions were found in the viscera, except the great intestine, which was studded with ulcers. The necrosed extremity of the femur slightly protruded from the wound. This was the end of a very large, loose sequestrum, invested by a fragile involucrum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 165. *Diseased Stump of Left Femur, amputated at the Junction of the Lower Thirds.*

Corporal Thomas C. T——, Co. C, 12th Georgia (Rebel) Infantry, aged twenty-nine years, was shot through the left knee joint by a conoidal musket ball, on July 12, 1864, near Silver Springs, in General Early's demonstration against Washington. He was left on the field, and two days afterwards was conveyed to Lincoln Hospital. The ball had grooved the inner condyle of the femur and fractured the patella, as is shown in Specimen 2842, from the same case. Assistant Surgeon J. C. McKee, U. S. A., amputated at the lower third of the thigh, on the 14th, by Dupuytren's method. Osteomyelitis supervened, and the patient died from exhaustion, December 26, 1864. At this time the femur protruded two or more inches from the stump. It presents a loose sequestrum, lying in a very perfect involucrum. It is numbered 3518 in the Surgical Section, A. M. M.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 166. *Case of Recovery after a Penetrating Gun-shot Wound of the Ascending Colon.*

Colonel Edward W. Hinks, of the 19th Massachusetts Volunteers, 2d Division 2d Army Corps, was wounded at the battle of Antietam, about noon of September 17, 1862, by two musket balls of which one shattered the right radius, and the other entered on a level with the umbilicus, three inches above the middle of the crest of the right ileum, and, having traversed the ascending colon, emerged a little to the right of the lumbar vertebræ. He lay upon the field until about noon of the following day, when he was removed to a vacant house, and thence to a field hospital, where he was attended by Surgeon J. Franklin Dyer, 19th Massachusetts Volunteers. On September 21, fœcal matter began to escape from the wound of exit. On the 26th there were grave symptoms of peritonitis, which were treated by entire rest, morphia, and cold water dressings. Impacted fœces in the lower part of the descending colon were removed mechanically. On October 12, he was removed to a Baltimore Hospital. Fœcal discharges from the wound continued about four weeks longer. In November the patient was removed to Boston, and was treated by Dr. George M. Gay, at the Massachusetts General Hospital. He ultimately recovered entirely, and was commissioned Lieutenant Colonel of the Fortieth U. S. Infantry, July 28, 1866, on the re-organization of the Army.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS Nos. 167, 168, 169, 170 AND 186. *Case of*
Chiloplasty.

Private Rowland Ward, Co. E, 4th New York Heavy Artillery, aged forty-six years, was wounded at Ream's Station, Virginia, August 25th, 1864, by a fragment of shell, which destroyed and completely carried away the inferior maxillary bone and soft parts, commencing two inches anterior to the angle on the right side, carrying away the chin and all the soft parts down the neck, on a level with the hyoid bone, destroying the floor of the mouth completely, allowing the tongue to protrude and hang down on the neck. Three of the right lower incisor teeth, with the corresponding alveoli loosely connected with the tissue, remained, and were allowed to stay in that position until the healing process took place, as they gave a partial support to the tongue and submaxillary gland, which was not injured. The wound extended across to the left side, carrying away all the teeth and jaw bone, except those previously mentioned, to a point as high up as the angle of the inferior maxillary on the left side. He was admitted to Lincoln Hospital, Washington, D. C., August 28th, 1864. The patient did well, and improved rapidly. On December 9th he was furloughed for thirty days, and at the expiration of his furlough he was readmitted to hospital. On January 20th, 1865, an operation was performed to construct a floor for the mouth—no anæsthesia was used. Preliminary to the operation, two molar teeth were extracted from the right hand fragment of the lower jaw. An incision was made two and a half inches in length down the median line of the neck, terminating one inch above the thyroid cartilage. Two lateral incisions, one upon each side, of equal length, right-angled to the vertical incision, these incisions corresponding to the base of the jaw. These flaps were then carefully dissected up, brought together at the middle incision, and secured by three hare-lip needles, the parts being supported by adhesive straps. Frequent application of dry lint was made to protect the parts from the injurious effects of the saliva, which was being constantly secreted. The healing proceeded rapidly, the parts uniting by first intention. Power of articulation and degustation was much improved. The needles were removed on the third day. On April 22d, 1865, the parts being in a favorable condition, ether was administered and a second operation was performed. Two incisions, one on the right and one on the left, parallel to the inferior border of the inferior maxillary bone, each three inches in length, severing both the facial arteries, which were secured by ligatures. The upper flaps were carefully dissected up, as far back as the angle of the jaw upon each side. The anterior edges of these flaps were freely incised, as well as the superior edge of the parts remaining after the first operation. The flaps were then brought into apposition and retained by four hare-lip needles, two in the upper flap forming the lip, and one upon each side, uniting the lower edge of the flap to the freshened edge of the parts after the first operation. Dry lint dressings were applied, and the patient was fed through a gum catheter. The hare-lip pins were removed from the longitudinal incision on the third day, the others being removed on the fourth day, at which time the remaining pins, together with all the sutures, were removed, the parts being supported throughout the remainder of the treatment by straps of adhesive plaster. On the morning of the 27th of April, secondary hæmorrhage occurred from the left facial artery, which was readily controlled by digital compression. Owing to the constant secretion of saliva from the sub-lingual gland, which was carefully preserved during the operation, a slough was produced at the junction of the inferior angle of the flaps. This was checked by the application of a weak solution of nitric acid. On June 23d the patient was discharged at his own request. A fistulous orifice, one-fourth of an inch in diameter, only remaining, in consequence of the constant secretion of saliva from the sub-lingual gland, which prevented the parts from closing by granulation. He is able to articulate quite plainly, which he has hitherto been unable to do since the date of his injury. Until the completion of this operation the patient was compelled to assume a recumbent position to receive his nourishment, or even a swallow of water. He can now take his food and drink without any difficulty in an erect posture. By the use of a rubber button, properly adjusted to the fistulous orifice, the secretion of saliva was prevented from making its exit externally. The photographs were printed from negatives prepared at Lincoln Hospital, under the direction of Surgeon J. C. Cooper McKee, who was the operator in the case.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 167, 168, 169, 170 AND 186. *Case of Cheiloplasty.*

Private Rowland Ward, Co. E, 4th New York Heavy Artillery, aged forty-six years, was wounded at Ream's Station, Virginia, August 25th, 1864, by a fragment of shell, which destroyed and completely carried away the inferior maxillary bone and soft parts, commencing two inches anterior to the angle on the right side, carrying away the chin and all the soft parts down the neck, on a level with the hyoid bone, destroying the floor of the mouth completely, allowing the tongue to protrude and hang down on the neck. Three of the right lower incisor teeth, with the corresponding alveoli loosely connected with the tissue, remained, and were allowed to stay in that position until the healing process took place, as they gave a partial support to the tongue and submaxillary gland, which was not injured. The wound extended across to the left side, carrying away all the teeth and jaw bone, except those previously mentioned, to a point as high up as the angle of the inferior maxillary on the left side. He was admitted to Lincoln Hospital, Washington, D. C., August 28th, 1864. The patient did well, and improved rapidly. On December 9th he was furloughed for thirty days, and at the expiration of his furlough he was readmitted to hospital. On January 20th, 1865, an operation was performed to construct a floor for the mouth—no anæsthesia was used. Preliminary to the operation, two molar teeth were extracted from the right hand fragment of the lower jaw. An incision was made two and a half inches in length down the median line of the neck, terminating one inch above the thyroid cartilage. Two lateral incisions, one upon each side, of equal length, right-angled to the vertical incision, these incisions corresponding to the base of the jaw. These flaps were then carefully dissected up, brought together at the middle incision, and secured by three hare-lip needles, the parts being supported by adhesive straps. Frequent application of dry lint was made to protect the parts from the injurious effects of the saliva, which was being constantly secreted. The healing proceeded rapidly, the parts uniting by first intention. Power of articulation and degustation was much improved. The needles were removed on the third day. On April 22d, 1865, the parts being in a favorable condition, ether was administered and a second operation was performed. Two incisions, one on the right and one on the left, parallel to the inferior border of the inferior maxillary bone, each three inches in length, severing both the facial arteries, which were secured by ligatures. The upper flaps were carefully dissected up, as far back as the angle of the jaw upon each side. The anterior edges of these flaps were freely incised, as well as the superior edge of the parts remaining after the first operation. The flaps were then brought into apposition and retained by four hare-lip needles, two in the upper flap forming the lip, and one upon each side, uniting the lower edge of the flap to the freshened edge of the parts after the first operation. Dry lint dressings were applied, and the patient was fed through a gum catheter. The hare-lip pins were removed from the longitudinal incision on the third day, the others being removed on the fourth day, at which time the remaining pins, together with all the sutures, were removed, the parts being supported throughout the remainder of the treatment by straps of adhesive plaster. On the morning of the 27th of April, secondary hæmorrhage occurred from the left facial artery, which was readily controlled by digital compression. Owing to the constant secretion of saliva from the sub-lingual gland, which was carefully preserved during the operation, a slough was produced at the junction of the inferior angle of the flaps. This was checked by the application of a weak solution of nitric acid. On June 23d the patient was discharged at his own request. A fistulous orifice, one-fourth of an inch in diameter, only remaining, in consequence of the constant secretion of saliva from the sub-lingual gland, which prevented the parts from closing by granulation. He is able to articulate quite plainly, which he has hitherto been unable to do since the date of his injury. Until the completion of this operation the patient was compelled to assume a recumbent position to receive his nourishment, or even a swallow of water. He can now take his food and drink without any difficulty in an erect posture. By the use of a rubber button, properly adjusted to the fistulous orifice, the secretion of saliva was prevented from making its exit externally. The photographs were printed from negatives prepared at Lincoln Hospital, under the direction of Surgeon J. C. Cooper McKee, who was the operator in the case.

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Photographed at the Army Medical Museum.

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Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 171. *Two Examples of Gunshot Fracture of the Upper Third of the Femur. Amputation at the Hip Joint was performed in each*

The specimen on the left, No. 3098, Surgical Section, Army Medical Museum, is from the patient on whom Surgeon E. Bentley performed a secondary amputation at the hip joint, August 10, 1864. The case is described in detail in Circular No. 7, S. G. O., 1867, p. 39. The specimen on the right, No. 2288, Surgical Section, is from Dr. J. C. McKee's secondary coxo-femoral disarticulation, recorded at page 41 of the same Report.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 172. *Specimens of Gunshot Fractures of the Femur in Cases treated by Primary Amputation at the Hip Joint.*

The specimen on the left, No. 3080, Surgical Section, Army Medical Museum, shows the comminution of the left femur by a large fragment of shell, in a case in which Surgeon C. C. Jewett, 16th Massachusetts Volunteers, amputated at the hip. An abstract of the case is published at page 30, of Circular No. 7, S. G. O., 1867. The other specimen, No. 2273, Surgical Section, exhibits a fracture by a rifle ball. Surgeon A. C. Gorgas, U. S. Navy, amputated at the hip joint. See Circular No. 7, S. G. O., 1867, p. 29.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 173. *Specimens of Gunshot Fractures of the Femur. Intermediate Amputations at the Hip were performed.*

No. 4237, Surgical Section, Army Medical Museum, is from the patient whom Surgeon Griswold, U. S. V., amputated at the hip, April 12, 1865. See Circular No. 7, S. G. O., 1867, p. 39, for an abstract of the case. Surgeon Edwin Bentley's intermediate amputation at the hip furnished the other specimen. See Circular No. 7, S. G. O., 1867, p. 38.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Br't Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.

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PHOTOGRAPH 174. *Specimens of Necrosis of the Femur following Gunshot Injury.*

The smaller specimen is from Dr. Packard's successful exarticulation, in a case in which the thigh had previously been amputated in the continuity. In Circular No. 7, S. G. O., 1867, at page 49, an abstract of the case will be found. The other specimen, No. 84 of the Surgical Series, Army Medical Museum, is from Dr. Wagner's case of secondary amputation at the hip joint for necrosis following contusion of the femur by a musket ball. Circular No. 7, S. G. O., 1867, p. 41.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 175. *Gunshot Fractures of the Femur from Cases in which Amputation at the Hip Joint was performed.*

Specimen 710 is from the patient on whom Lieutenant Colonel Pineo, Medical Inspector, U. S. A., performed an amputation at the hip joint, December 27, 1862,—case XXVII of the series described in the Report on amputations at the hip joint in Circular No. 7, S. G. O., 1867. Specimen 1148 is from the successful primary amputation at the hip joint by Surgeon E. Shippen, U. S. V., Circular No. 7, S. G. O., 1867, p. 26.

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PHOTOGRAPH 176. *Successful Primary Excision of the Head and Four Inches of Shaft of the Right Humerus for Gunshot Fracture.*

Major Thomas G. Morrison, 66th Indiana Volunteers, was wounded at Big Shanty, Georgia, October 4, 1864, by a conoidal ball, which passed through the surgical neck of the right humerus, severing the head from the shaft. Surgeon A. Goslin, 48th Illinois Volunteers, excised the head and four inches of the shaft through a single straight incision on the day after the injury. The wound healed kindly. In January, 1866, an exfoliation from the remaining portion of the humerus was removed by Drs. Crozier and Reed at Nashville, Tennessee. In March, 1867, Major Morrison visited the Army Medical Museum. He had tolerably good use of his arm and fingers and could flex the forearm at a right angle. Pronation and supination were partially preserved.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 177. *Recovery after Fracture of the Right Ilium by a Musket Ball.*

At the battle of Cedar Creek, October 19, 1864, Private Henry Reems, Co. I, 30th Massachusetts Volunteers, aged twenty-one years, was struck on the right side of the abdomen by a musket ball, which passed through the crest of the ilium, and emerged posteriorly, six inches from the wound of entrance. He was sent to the general hospital at Frederick. Numerous bits of bone were removed from both orifices of the wound. On November 18, the patient was transferred to Filbert Street Hospital in Philadelphia. There was protracted suppuration, and the patient was unable to bear his weight on the limb of the injured side for five months. On April 26, 1865, he was moved to Turner's Lane, Philadelphia, where the diagnosis of "Epilepsy" was recorded. On May 10, he was again transferred to McClellan Hospital, and here the diagnosis, "gunshot wound of the ilium" reappears. He was discharged from service June 4, 1865. On April 3, 1867, he visited the Army Medical Museum. The anterior cicatrix was adherent to the bone. There was partial false ankylosis of the hip, and the knee was also somewhat stiff.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 139, 178, 179 AND 292. *Partially Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Private George Ruoss, Co. G, 7th New York Volunteers, aged twenty-seven years, was wounded in an engagement at the South Side Railroad, near Petersburg, Virginia, on March 31, 1865, by a conoidal musket ball, which struck the anterior and outer aspect of the right thigh, about three inches below the great trochanter, and, passing inwards and a little downwards, comminuted portions of the upper and middle thirds of the femur, and emerged posteriorly, about the middle of the gluteal fold. He was taken to the Base Hospital at City Point, and on April 6th, was transferred to Campbell Hospital at Washington. On July 8th, he was removed to Stanton Hospital, and, on September 12th, to Harewood Hospital. On his admission to Harewood, he was able to sit up, and the constitutional condition was tolerably good. The fracture had united with great deformity; there were several fistulous orifices, through which fragments of necrosed bone were extracted almost daily. On May 1, 1866, Ruoss was transferred, on the closure of Harewood, to the Post Hospital at Washington. On June 8th, he was etherized, and Assistant Surgeon W. Thompson, U. S. A., made a V shaped incision at the upper and outer part of the thigh, and removed several fragments of diseased bone. September 30, 1866: the wound has nearly healed: there are three sinuses, (two on the upper, and one on the lower surface,) which lead to what is evidently necrosed bone. December 31, 1866: Sinuses still open and discharging, general condition feeble; there is great deformity, and about five inches shortening of the limb, with almost complete ankylosis of the knee joint. The photograph was taken in July, 1867. A communication from Assistant Surgeon John Brooke, U. S. A., dated July 6, 1868, furnishes the following additional information:—On taking charge of the patient in November, 1867, he found the limb in the same condition as that previously described, except that a collection of pus, which had formed on the inner aspect of the thigh, just above the knee, had been opened, and that there was a sinus connecting with the seat of fracture. This sinus, with the openings above mentioned, continued until death. The patient was extremely feeble, greatly emaciated, and suffered much from diarrhœa and anorexia. These symptoms continued until the patient's death, which occurred June 27th, 1868. At the autopsy, the liver was found enormously enlarged, weighing ten pounds and ten ounces; and the right lung contained a small mass of calcareous matter. Portions of the tibia and fibula, and the femur with the os innominatum and patella attached, were removed. The femur, imperfectly united with great displacement and a deposit of foliaceous callus, shows that extensive periostitis had taken place. The upper portions of the tibia and fibula and the patella, also, show similar pathological changes. The specimen is No. 5450 of the Surgical Section.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

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ARMY MEDICAL MUSEUM.

PHOTOGRAPHS NOS. 139, 178, 179 AND 292. *Partially Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Private George Ruoss, Co. G, 7th New York Volunteers, aged twenty-seven years, was wounded in an engagement at the South Side Railroad, near Petersburg, Virginia, on March 1, 1865, by a conoidal musket ball, which struck the anterior and outer aspect of the right thigh, about three inches below the great trochanter, and, passing inwards and a little downwards, comminuted portions of the upper and middle thirds of the femur, and emerged posteriorly, about the middle of the gluteal fold. He was taken to the Base Hospital at City Point, and on April 6th, was transferred to Campbell Hospital at Washington. On July 8th, he was removed to Stanton Hospital, and, on September 12th, to Harewood Hospital. On his admission to Harewood, he was able to sit up, and the constitutional condition was tolerably good. The fracture had united with great deformity; there were several fistulous orifices, through which fragments of necrosed bone were extracted almost daily. On May 1, 1866, Ruoss was transferred, on the closure of Harewood, to the Post Hospital at Washington. On June 8th, he was etherized, and Assistant Surgeon W. Thompson, U. S. A., made a V shaped incision at the upper and outer part of the thigh, and removed several fragments of diseased bone. September 30, 1866: the wound has nearly healed: there are three sinuses, (two on the upper, and one on the lower surface,) which lead to what is evidently necrosed bone. December 31, 1866: Sinuses still open and discharging, general condition feeble; there is great deformity, and about five inches shortening of the limb, with almost complete ankylosis of the knee joint. The photograph was taken in July, 1867. A communication from Assistant Surgeon John Brooke, U. S. A., dated July 6, 1868, furnishes the following additional information:—On taking charge of the patient in November, 1867, he found the limb in the same condition as that previously described, except that a collection of pus, which had formed on the inner aspect of the thigh, just above the knee, had been opened, and that there was a sinus connecting with the seat of fracture. This sinus, with the openings above mentioned, continued until death. The patient was extremely feeble, greatly emaciated, and suffered much from diarrhoea and anorexia. These symptoms continued until the patient's death, which occurred June 27th, 1868. At the autopsy, the liver was found enormously enlarged, weighing ten pounds and ten ounces; and the right lung contained a small mass of calcareous matter. Portions of the tibia and fibula, and the femur with the os innominatum and patella attached, were removed. The femur, imperfectly united with great displacement and a deposit of foliaceous callus, shows that extensive periostitis had taken place. The upper portions of the tibia and fibula and the patella, also, show similar pathological changes. The specimen is No. 5450 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 180 *Diseased Thigh Stump.*

Private William Cotter, Co. E, 9th New Hampshire Volunteers, aged twenty-seven years, underwent primary amputation of the right thigh at the lower part of the middle third, on account of gunshot fracture of the lower third of the femur, at Petersburg, Virginia, July 30, 1864. On August 3, 1864, the patient was admitted to Douglas Hospital, at Washington. The stump was swollen from the retention of pus. On August 13, the swelling was much reduced and the constitutional irritation had greatly abated; the ligature from the femoral artery came away on that day. On November 29, 1864, the wound was cicatrized, with the exception of a small fistulous orifice through which dead bone had been felt for two months previously. An incision was made here, and a cylindrical sequestrum, nearly six inches long, was extracted. A photograph of the stump was made at this time, (Photograph 61, Surgical Series, A. M. M.) The stump remained irritable, and abscesses formed from time to time. Exploration with the probe indicated that the involucrum was spongy and unhealthy. On June 6, 1866, Assistant Surgeon William Thomson, U. S. A., resected six inches of the new bone. After this the stump healed firmly, and the patient was discharged October 15, 1866.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 181. *A Perinæal Fistula—Unsuccessful Urethroplasty.*

Peter Fox, quartermaster department, aged twenty-one years, was admitted into the Post Hospital in Washington on May 1, 1866, with two fistulae of the membranous portion of the urethra, the result of a severe lacerated wound of the perinæum, caused by falling astride of a plank. Cauterization of the edges of the fistulae by bromine, nitrate of silver, and the actual cautery was at intervals unavailingly essayed. A plastic operation had already been performed by Dr. N. S. Lincoln without success. On June 3, Assistant Surgeon W. Thomson, U. S. A., pared the edges of the apertures and approximated them by silver sutures. A catheter was retained in the bladder, the urethra having been dilated freely by the daily use of bougies. There was dysuria and frequent micturition on the following day, and on the 6th, the sutures were removed. The posterior orifice appeared to have closed; but it reopened, and recourse was again had to cauterization, without advantage. There was so much loss of substance, nearly a third of the cylinder of the urethra being destroyed, that the restoration of the canal was a very difficult problem.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 182. *Successful excision of the Head of the Right Humerus.*

Private Sylvanus B. Crane, Co. H, 13th Infantry, was struck, at the engagement at Chickasaw Bayou, near Vicksburg, December 29, 1862, by a conoidal musket ball, which entered his right shoulder anteriorly, comminuted the head of the humerus and lodged under the superior angle of the scapula. Two hours after the reception of the injury, Surgeon George S. Walker, 6th Missouri Volunteers, excised the head and upper portion of the shaft, about five inches altogether. He employed a vertical incision carried from the tip of the acromion about six inches downwards through the belly of the deltoid. The patient was placed on a hospital transport and sent to St. Louis, and admitted to the Lawson Hospital on January 17, 1863. He made a rapid recovery, and on April 27, 1863, he was discharged from the hospital, cured, and from the military service of the United States. The photograph was made more than five years afterwards. At that period Crane was sent to New York by order of General Madison Mills, Surgeon U. S. A., and was furnished by Dr. E. D. Hudson with an apparatus which greatly facilitated the movements of his arm. Prior to this, he had full control over the forearm and hand, but the ligamentous attachments of the upper extremity of the humerus to the scapula were so long that movements of the arm were very imperfect. The arm was shortened only one and a half inches and its size was nearly normal, except that the deltoid was wasted from disease. After the application of the apparatus, Crane enjoyed a highly satisfactory power over the movements of the arm. The photograph was made in September, 1868.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS 183 AND 184. *A Large Oxalate of Lime Urinary Calculus removed by Lithotomy.*

This remarkably large mulberry calculus is numbered 4848 of the Surgical Section of the Army Medical Museum. Before the section was made it weighed 77.23 grammes, about two and a half ounces Troy. Its principal diameters are two and a fourth, one and seven-eighths, and one and five sixteenths inches. It was contributed by Dr. Nathan S. Lincoln, who removed it by the lateral operation for lithotomy from the bladder of a man who had long suffered from the symptoms of stone in the bladder. It was necessary to make an additional section in the right lobe of the prostate, in order to extract the stone. The patient did well for a fortnight; but ultimately died. The calculus consists mainly of oxalate of lime, with a little coloring matter. The light colored layers contain a little uric acid mixed with various organic matters.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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PHOTOGRAPH 185. *Successful Trephining in a Case of Depressed Fracture produced by a Fall.*

Jesse Smith, a colored lad of sixteen years, employed by a cattle drover, was sent to sleep, on the night of August 11, 1867, in a hay-loft over a stable. He rolled off the hay mow during the night, and fell to the floor of the stable, and was found in the morning cold and unconcious. He was taken to the Freedmen's Hospital in Alexandria, Virginia, and was examined by Acting Assistant Surgeon R. N. Atwood, who found a contused cerebral wound of the scalp, and a depressed fracture of the right parietal eminence. The boy had recovered his consciousness; the symptoms of concussion of the brain had passed away, and there was no evidence of compression. An expectant treatment was adopted, and no unsatisfactory symptoms appeared for twelve days. On August 22, there was severe headache, and, at night, a convulsion. On August 23, the pain had increased, and there was stupor, and it was decided to elevate the depressed bone. Assisted by Acting Assistant Surgeon A. W. K. Andrews, Dr. Atwood enlarged the wound and trephined. On removing a button of bone, there was a free escape of pus. A depressed fragment of the inner table extending three-fourths of an inch beyond the fracture in the outer table was, with much difficulty, elevated and removed. The patient was rendered insensible during the operation by sulphuric ether. On recovering from the anæsthetic, he had intolerable pain, and one grain of sulphate of morphia was given him. For the next ten days he took from two to three grains of the sulphate of morphia daily, and no other medicine. He was fed on bread and milk acidulated with vinegar, to suit his taste, and he had vinegar and water to drink. His bowels acted regularly. Three days after the operation, the brain began to protrude; and on the tenth day the cerebral hernia was half the size of an hen's egg. Gentle compression of the fungous mass was essayed, but immediately provoked violent convulsions. After the tenth day, the tumour began to diminish in size, and by the end of September it had disappeared, and the wound had cicatrized. At this period, the boy was brought to the Army Medical Museum and photographed. His health was perfectly good and his faculties unimpaired. The specimen of the disk and depressed fragment of the parietal was presented to the Museum by Dr. Atwood. It is 4817, of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 167, 168, 169, 170 AND 186. *Case of Cheiloplasty.*

Private Rowland Ward, Co. E, 4th New York Heavy Artillery, aged forty-six years, was wounded at Ream's Station, Virginia, August 25th, 1864, by a fragment of shell, which destroyed and completely carried away the inferior maxillary bone and soft parts, commencing two inches anterior to the angle on the right side, carrying away the chin and all the soft parts down the neck, on a level with the hyoid bone, destroying the floor of the mouth completely, allowing the tongue to protrude and hang down on the neck. Three of the right lower incisor teeth, with the corresponding alveoli loosely connected with the tissue, remained, and were allowed to stay in that position until the healing process took place, as they gave a partial support to the tongue and submaxillary gland, which was not injured. The wound extended across to the left side, carrying away all the teeth and jaw bone, except those previously mentioned, to a point as high up as the angle of the inferior maxillary on the left side. He was admitted to Lincoln Hospital, Washington, D. C., August 28th, 1864. The patient did well, and improved rapidly. On December 9th he was furloughed for thirty days, and at the expiration of his furlough he was readmitted to hospital. On January 20th, 1865, an operation was performed to construct a floor for the mouth—no anaesthesia was used. Preliminary to the operation, two molar teeth were extracted from the right hand fragment of the lower jaw. An incision was made two and a half inches in length down the median line of the neck, terminating one inch above the thyroid cartilage. Two lateral incisions, one upon each side, of equal length, right-angled to the vertical incision, these incisions corresponding to the base of the jaw. These flaps were then carefully dissected up, brought together at the middle incision, and secured by three hare-lip needles, the parts being supported by adhesive straps. Frequent application of dry lint was made to protect the parts from the injurious effects of the saliva, which was being constantly secreted. The healing proceeded rapidly, the parts uniting by first intention. Power of articulation and degustation was much improved. The needles were removed on the third day. On April 22d, 1865, the parts being in a favorable condition, ether was administered and a second operation was performed. Two incisions, one on the right and one on the left, parallel to the inferior border of the inferior maxillary bone, each three inches in length, severing both the facial arteries, which were secured by ligatures. The upper flaps were carefully dissected up, as far back as the angle of the jaw upon each side. The anterior edges of these flaps were freely incised, as well as the superior edge of the parts remaining after the first operation. The flaps were then brought into apposition and retained by four hare-lip needles, two in the upper flap forming the lip, and one upon each side, uniting the lower edge of the flap to the freshened edge of the parts after the first operation. Dry lint dressings were applied, and the patient was fed through a gum catheter. The hare-lip pins were removed from the longitudinal incision on the third day, the others being removed on the fourth day, at which time the remaining pins, together with all the sutures, were removed, the parts being supported throughout the remainder of the treatment by straps of adhesive plaster. On the morning of the 27th of April, secondary hemorrhage occurred from the left facial artery, which was readily controlled by digital compression. Owing to the constant secretion of saliva from the sub-lingual gland, which was carefully preserved during the operation, a slough was produced at the junction of the inferior angle of the flaps. This was checked by the application of a weak solution of nitric acid. On June 23d the patient was discharged at his own request. A fistulous orifice, one-fourth of an inch in diameter, only remaining, in consequence of the constant secretion of saliva from the sub-lingual gland, which prevented the parts from closing by granulation. He is able to articulate quite plainly, which he has hitherto been unable to do since the date of his injury. Until the completion of this operation the patient was compelled to assume a recumbent position to receive his nourishment, or even a swallow of water. He can now take his food and drink without any difficulty in an erect posture. By the use of a rubber button, properly adjusted to the fistulous orifice, the secretion of saliva was prevented from making its exit externally. The photographs were printed from negatives prepared at Lincoln Hospital, under the direction of Surgeon J. C. Cooper McKee, who was the operator in the case.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bo't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH 187. *Successful Excision of a Portion of the Shaft of the Right Femur for Gunshot Fracture.*

In the assault upon the heights of Fredericksburg by General Sedgwick's command, May 3, 1863, Sergeant Joseph B. Kendall, Co. K, 5th Wisconsin Volunteers, was struck by a musket ball, which split upon the shaft of the right femur, a portion of the missile lodging in the cylinder of the bone, and a portion traversing the thigh and making its exit posteriorly. He was conveyed on a stretcher to a house in Fredericksburg, and on the following morning to the Sixth Corps Hospital on Falmouth Heights. On May 10 he was sent on the cars to Acquia Creek, and thence on a hospital transport to Washington, and placed in Campbell Hospital. The injured limb was suspended by Smith's Anterior Splint. There was intense irritative fever, with copious suppuration. On May 21, Acting Assistant Surgeon F. W. Kelly made a long incision on the posterior aspect of the thigh, removed a fragment of ball and numerous detached fragments of bone, and turned out and sawed off the sharp extremities of the fractured shaft. The limb was then supported in a wooden trough by cushions. The surgical fever and suppuration gradually abated. Ultimately, firm union took place and the wounds closed, and the patient was discharged from the hospital and from the military service on May 4, 1864. On several occasions, subsequently, abscesses formed in the thigh, and bits of necrosed bone were eliminated. The sinuses did not close definitively until August, 1866. In September, 1866, Mr. Kendall was appointed a clerk in the Quartermaster General's Office. On November 6, 1867, he visited the Army Medical Museum, and his limb was photographed. At this date his general health was excellent. The injured limb was shortened two and one-half inches. There was false ankylosis of the knee. The fracture appeared to be firmly consolidated, and the cicatrices were sound. Notwithstanding the stiffness of his knee, Mr. Kendall walked briskly with a very slight limp.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Bvt Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.



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PHOTOGRAPH No. 188. *Successful Intermediate Excision of the Head, Neck and Trochanters of the Right Femur.*

Private Hugh Wright, Co. G, 8th New Jersey Volunteers, was wounded at the battle of the Wilderness, May 5th, 1864, and was admitted into Stanton Hospital, at Washington, May 25th, 1864. A conoidal musket ball, entering an inch to the inner side of the right femoral artery, two inches below Poupart's Ligament, had passed backwards and downwards, shattering the neck and trochanters of the femur, and lodged against the trochanter minor. On May 27th, Assistant Surgeon George A. Mursiek, U. S. Vols., made a vertical incision over the great trochanters, six inches in length, and extracted the ball and splinters, and excised the head, neck and trochanters of the femur. During the operation, anæsthesia was maintained by ether. The shock of the operation was great, and reaction was tardy. On the succeeding day there was much nervous agitation, the pulse was frequent and feeble, the tongue dry, and thirst excessive. On June 1st, these unfavorable symptoms had disappeared; the wound looked well, and discharged laudable pus. From this date, a tonic and supporting regimen was diligently enforced, and the patient's progress towards recovery was satisfactory. In November, 1864, and again in February, 1865, abscesses formed in the thigh, but, after poulticing and incision, they gave little trouble. In April, 1865, Wright moved about on crutches. On the 17th of April, he was discharged from the hospital and from the service of the United States. There was still a trifling fistulous orifice near the acetabulum; but the general health was excellent, and the prospect of ultimate recovery most encouraging. For a long time it was impossible to obtain any intelligence of Wright; but, in the summer of 1866, it was learned that he was an inmate of an Alms House in Orange, New Jersey. Subsequently he was employed as a day laborer. In October, 1868, he was in good health and could walk without a cane, and had been for some time an hod carrier. He had very satisfactory control over all the movements of the mutilated limb. He received a government pension of fifteen dollars a month. The fragments of bone removed are numbered 3375 in the Surgical Section of the Army Medical Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 189.

Private Jacob Eggerstedt, McRae's Battery, was wounded at the battle of Valverde, New Mexico, February 21, 1862, by a ball which fractured his right humerus. The arm was put in splints. There was no comminution to warrant an operation for the extraction of fragments or resection. The patient recovered from the injury; but with pseudarthrosis. He visited the Museum in the Summer of 1867, and his photograph was taken.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 190. *Stump of Left Thigh amputated primarily for Gunshot Fracture.*

Private John N. Taggart, Co. G, 1st Virginia Light Artillery, had the shaft of his left femur shattered by a fragment of shell at Rocky Gap, Virginia, August 26, 1863. Surgeon Wynne, 14th Pennsylvania Cavalry, amputated the limb at the junction of the upper thirds of the femur on the same day, by antero-posterior flaps. The wound healed very rapidly. He was sent to an hospital at Pittsburg, Pennsylvania. In less than a month the stump was firmly healed. In April, 1864, he was transferred to the Christian Street Hospital, in Philadelphia, and was thence discharged from service on June 14, 1864. On November 12, 1867, Mr. Taggart visited the Army Medical Museum, in excellent health, and his stump was photographed.

Photographed at the Army Medical Museum.

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PHOTOGRAPH 191. *Successful Secondary Excision of the Head of the Left Humerus.*

Lieutenant David H. Cortleyou, 6th New York Cavalry, was wounded in an affair at Bottom Bridge, June 3, 1864, by a musket ball, which struck the right side of the neck, and lodged in the left shoulder, whence it was extracted on the field. He was admitted to Armory Square Hospital, at Washington, on June 10. Surgeon D. W. Bliss, U. S. V., on the 13th made an incision in the left supra clavicular region and evacuated a large abscess; but was unable at the time to decide whether the head of the humerus was injured. On June 25, another incision was made through the deltoid, commencing two inches below the shoulder joint, to evacuate pus. On July 26, Mr. Cortleyou went on leave of absence. On November 24, 1864, he entered the Officer's Hospital at Annapolis. Here Surgeon B. A. Vanderkieft, U. S. V., removed, on several occasions, more than fifty necrosed fragments of bone, constituting the major portion of the head of the humerus. On March 18, 1865, Mr. Cortleyou was discharged from service. In December, 1867, he visited the Army Medical Museum. He had a very useful arm. He was subsequently commissioned in the regular army.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH 192. *Successful Excision of the Head of the Left Humerus for Gunshot Injury.*

Sergeant Michael Dolan, Co. E, 2d United States Infantry, aged twenty-five years, was wounded on December 13, 1862, at the battle of Fredericksburg, and was sent to the hospital at Point Lookout, Maryland. A conoidal musket ball, entering near the lip of the left acromion had lodged in the head of the humerus, comminuting the epiphysis, and making fissures which extended about two inches down the shaft. When admitted to hospital, on December 16, he was suffering from surgical fever, and was in an unfavorable condition to undergo an operation. Interference was postponed until March 6, 1863, when Assistant Surgeon Clinton Wagner, U. S. Army, excised the injured bone through a V shaped incision. The patient was anesthetized by ether, during the operation. The wound healed in about a month, and on February 19, the Sergeant was discharged from hospital and commissioned as Second Lieutenant in the 2d Infantry. He was promoted to a First Lieutenancy January 31, 1866. In January, 1868, he visited the Army Medical Museum, and permitted a photograph of the injured shoulder to be made. He had a very useful arm. The excised bone, with the ball lodged in it, constitutes specimen 999, of the Surgical Section of the Museum.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A. Curator A. M. M.



Surgeon General's Office.
ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 193. *Case of coxalgia, with luxation of the Head of the Femur.*

Private Richard B. Yeaton, 16th Massachusetts Battery, aged forty-four years. Admitted to Lincoln Hospital, Washington, August 2, 1864, with an old dislocation of the femur in the sciatic notch. On February 4, 1865, he was admitted to Armory Square Hospital, and transferred to Philadelphia, May 26th. He was discharged from the White Hall Hospital, Philadelphia, and from the service of the United States, on June 23, 1865.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 194. *Great Shortening of the Left Thigh, the Result of Comminuted Fracture of the Upper Third of the Femur by a Conoidal Musket Ball, with Removal of Fragment of Bone.*

Private John Durkin, Co. G, 11th United States Infantry, aged thirty years, was wounded at Gettysburg, July 2, 1863, by a conoidal musket ball, which entered the outer side of the upper third of the left thigh, and, passing obliquely inwards and downwards, produced a comminuted fracture of the femur. On the 3d, he was admitted to the Seminary Hospital at Gettysburg, where, on the 8th, Assistant Surgeon W. R. Ramsey, U. S. A., made an incision three inches in length, a short distance below and opposite the point of entrance, and extracted the ball. On the 31st, he was transferred to the Camp Letterman Hospital, where, so far as recorded, expectant treatment, only, was used. At this hospital, a surgeon who took charge of the case on August 19th, "found the limb lying in bed, without either splints or bandage; wounds discharging freely; considerable shortening of leg; ordered junk bags, placed Barton's Handkerchief to foot, and made extension and counter-extension." On the next day, the leg was reported the same length as the right one; on September 10th, there was very little suppuration, and the bones were uniting; but, on the 30th, the discharge still continued, and the patient was reported "sinking." On November 8th, he was transferred to the Newton University Hospital at Baltimore, where, on December 2d, Acting Assistant Surgeon W. S. Small made an incision three inches in length, down to the injured part, and removed a small fragment of bone. On February 19, 1864, the wound was still suppurating freely, and presented indications of the presence of necrosed bone. The limb was shortened four inches. The patient was furloughed on June 30, 1864, and, at its expiration, was admitted to the post hospital at Fort Independence, Boston Harbor, the recruiting dépôt of the 11th Infantry, where he was discharged the service April 30, 1865, for disability arising from gunshot fracture and "excision of four inches of the upper third of the femur, performed previous to admittance." The wound was still suppurating, and there was partial ankylosis of knee. Prior to his admission to the latter hospital, there is no mention of an excision of the shaft of the femur. The patient became an inmate of Old Soldiers' Home; and, on August 3, 1868, he visited the Army Medical Museum, and had his photograph taken. He states, that Dr. Small excised four inches of the shaft of femur at Newton University Hospital in December, 1863; that, at the time of the operation, there was profuse suppuration from the wound and abscesses in the thigh, and that Smith's Anterior Splint was used. At the date of his visit to the Museum, open fistulous sinuses remained. The patient's statement at Fort Independence, undoubtedly led to the above diagnosis; and, from the treatment pursued prior to his admission to Newton University Hospital, coupled with the report of the operation made the same month, it is most plausible to believe, that the great shortening is to be attributed to causes other than excision.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.
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ARMY MEDICAL MUSEUM.
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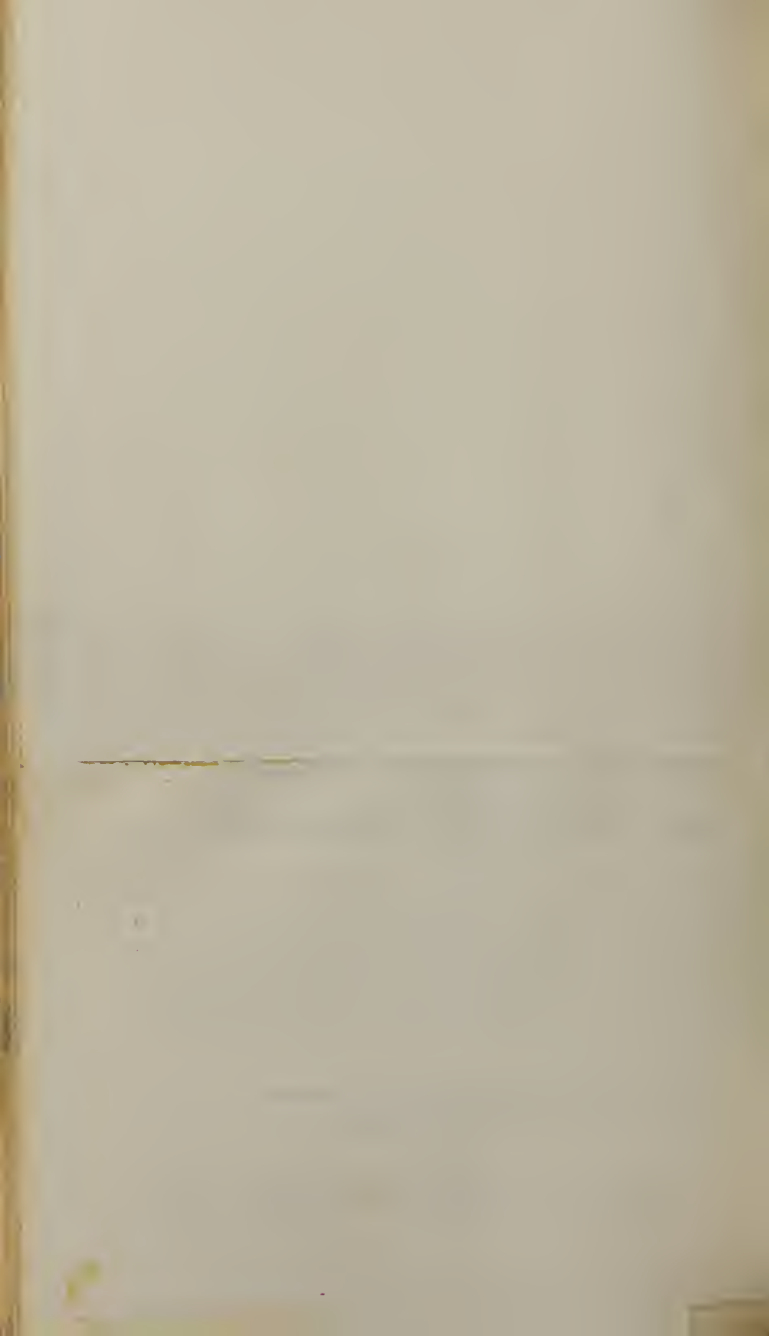
PHOTOGRAPH No. 195. *Aneurism of the Innominate Artery.*

A patient of Dr. R. K. Stone, of Washington, Mr. Joseph Brown, a man of about fifty years, with a huge aneurism of the innominate artery, visited the Army Medical Museum in July, 1868, and sat for his picture. The sac was so thinned at some points that the skin was quite discolored. A few days subsequently, July 30, 1868, the sac ruptured, and the unfortunate man instantly expired.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.



Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPHS NOS. 3, 196 AND 197. *Case of successful primary amputation at the Hip Joint.*

Private James E. Kelly, company B, 56th Pennsylvania Volunteers, aged twenty-eight years, was wounded at about 9 o'clock of the morning of April 29, 1863, in a skirmish of the First Division, First Corps, on the Rappahannock, nearly opposite the "Pratte House," below Fredericksburg. A conoidal musket ball, fired from a distance of about three hundred yards, shattered his left femur. A consultation of the senior surgeons of brigades decided that exarticulation of the femur was expedient, and the operation was performed, at four in the afternoon, at the "Fitzhugh House," by Surgeon Edward Shippen, U. S. Vols., Surgeon-in-chief of the First Division. The single flap method was adopted, and the amputation was accomplished with slight loss of blood. The patient was at first placed in a hospital tent, and was transferred, May 22, to the Corps Hospital, progressing favorably. By May 28, all the ligatures had been removed. On June 15, 1863, the patient was captured by the enemy, and was removed to the Libby Prison, in Richmond. Up to this date there had been no bad symptoms. On July 14, Kelly was exchanged, and was sent to the Annapolis U. S. A. General Hospital. On his admission he was much exhausted by profuse diarrhœa. The internal portion of the wound had united, but the external portion was gangrenous. Applications of bromine were made to the sloughing surface without amelioration. A chlorinated soda lotion was substituted, and in the latter part of July there was a healthy granulating surface. On December 23, 1863, the wound had entirely healed, and Kelly visited Washington, and obtained an honorable discharge from service, and a pension. At this date, the picture from which the photograph was taken was drawn by Hospital Steward Stauch, U. S. A., one of the artists of the Army Medical Museum. Kelly then went to his home, near Black Lick P. O., Indiana County, Pennsylvania. A letter, dated January 12, 1865, was received from him at this Office, and represented him as in excellent health and spirits at that time. In the spring of 1868, Kelly went to New York and had an artificial limb adapted by Dr E. D. Hudson. At that time the photograph was taken. He could walk quite well after the adaptation of the artificial limb. The specimen is preserved at the Army Medical Museum and is No. 1148 of the Surgical Section.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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PHOTOGRAPH No. 198. *Successful excision of the Head of the Right Humerus.*

Private Charles Mitchell, Co. C. 4th Cavalry, aged thirty-one years, a man of good constitution and habits, was wounded on June 2, 1867, by the accidental discharge of his (Spencer) carbine, which he let fall, while in a stooping posture. The ball inflicted four wounds: a flesh wound at the lower inner part of the left thigh, a destruction of the last phalanx of the left little finger, a perforation of the flexors of the left forearm, and a fracture of the left humerus. The neck of the humerus was badly shattered. The ball finally lodged in the infra-spinatus muscle. Eight hours after the reception of the injuries, Acting Assistant Surgeon D. Jackson, the post surgeon at Fort Clark, Texas, where Mitchell was stationed, excised the head and nearly one-half of the shaft of the humerus through a V shaped incision. The case progressed favorably, and the wounds had entirely healed on October 12, 1867. On November 10, 1867, the patient was discharged from hospital. His term of service had expired on July 1. He was made a watchman of a military storehouse at San Antonio, Texas. He had no control over the movements of the arm or forearm, and his hand was partly paralyzed. In June, 1868, he was sent to New York, and an apparatus was adapted to the limb by Dr. E. D. Hudson. This enabled him to move the arm and forearm sufficiently to carry his hand to his mouth or to the top of the head. At this date sensation was returning in the hand, and a little more power of motion over the fingers.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.



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PHOTOGRAPHS NO. 199 AND 200. *Successful secondary amputation at the Knee Joint.*

Corporal David D. Cole, Co. A, 2d New York Cavalry, aged twenty-three years, was wounded at Amelia Court House, Virginia, April 7, 1865, by a conoidal musket ball which passed through the left leg. It was thought that the tibia and fibula were uninjured. He was admitted to Hick's Hospital, in Baltimore, on June 28. The tibia had become bare for nearly its whole length, the limb was much tumefied, and the inter-muscular spaces were filled with pus. On August 1, 1865, Assistant Surgeon George M. McGill, U. S. A., amputated the limb at the knee joint, by making a long anterior and short posterior flap, and retaining the patella. The stump healed favorably. Four months after the injury, the patella having greatly retracted, was drawn over the super condyloid space and fixed by a bandage. On November 22, 1865, Corporal Cole was discharged from service and sent to New York to have an artificial limb applied by Dr. E. D. Hudson. The broad condyles offered an admirable base of support. The cicatrix was firm. The limb answered an excellent purpose. In 1868, Cole was living at his home at Spring Valley, New York, and walked without a cane.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 201. *Results of an Excision of the Head and Upper Third of the Shaft of the Left Humerus for Gun-shot Fracture, complicated by a Perforation of the Scapula.*

William T. Massey, private Co. I, 7th Illinois Volunteers, was wounded at the battle of Altoona, Georgia, October 5, 1864, by a conoidal ball entering anterior aspect of arm and emerging through the body of scapula, below the spine, producing a compound comminuted fracture at upper third of left humerus. Seven hours after the reception of the injury, while on the field, Surgeon Sylvester H. Sawyers, 36th Iowa Volunteers, excised the upper third of the shaft, removing four and a half inches together with the head of the humerus, through a linear incision between the biceps and deltoid muscles. The wound healed well, with flexion of fore-arm impaired by contraction of the injured triceps extensor. The wound through the scapula was yet open, and the arm useless for labor when the man was discharged the service. His arm was shortened one and a half inches, but was nearly normal in size. He was discharged from service March 12, 1865, while at Chattanooga, Tennessee. An apparatus was furnished him by Dr. E. D. Hudson three years and eleven months after the excision, which greatly improved the power of moving the limb.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 202. *Excision of the Head of Left Humerus for Gunshot Injury.*

Henry D. Fulton, private Co. E, 30th Indiana Volunteers, was wounded at the battle of Chickamauga, Georgia, September 19, 1863, by a canister shot. The missile entered at the surgical neck of the left humerus, passed upward and backward, comminuted the head of the humerus, and made its exit beneath the base of the acromion. The patient was sent to the Cumberland hospital at Nashville, Tennessee. Extensive exfoliation followed, and abscesses burrowed beneath the clavicle and scapula. On November 1, 1863, Assistant Surgeon C. F. Haynes, U. S. V., excised the head of the left humerus, the outer portion of the acromion process, and a portion of the articular surface of the scapula, through a linear incision on the anterior aspect of the arm. The case progressed favorably, suppuration beneath the clavicle and scapula ceased, the external wound cicatrized, and his general health rapidly amended. Unfortunately, firm ankylosis took place between the scapula and upper extremity of the humerus, and the muscles of the shoulder wasted from disuse. The patient was transferred to hospital at Madison, Indiana, on March 11, 1864, and was discharged from service April 22, 1864. In September, 1868, this pensioner went to New York, and was provided with an apparatus by Dr. E. D. Hudson, who reported that the shortening of the arm was about half an inch, the motions of the forearm and hand were normal, that the muscles of the shoulder were much atrophied, and that the only motion of the shoulder was the limited movements permitted by the scapula following the humerus. Dr. Hudson was of the opinion that the apparatus which he applied mechanically aided muscular action to a satisfactory degree.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 203. *Stump of a Reamputation at the Right Hip, Two and a half years Subsequent to the Operation.*

Private Eben E. Smith, Co. A, 11th Maine Volunteers, aged nineteen years, was wounded at the engagement at Deep Bottom, near Drury's Bluff, Virginia, on August 16, 1864, by a musket ball, which fractured the head of the right tibia. He was admitted to the U. S. General Hospital, at Beverly, New Jersey, on August 22, 1864. On September 12th, the thigh was amputated at the lower third. On January 19, 1865, re-amputation at the hip was performed by Acting Assistant Surgeon J. H. Packard. On January 27th, there was secondary hæmorrhage, and the external iliac was tied. On May 27th, he was discharged from service, well and strong. He was received as a pensioner in the Eastern Branch of the U. S. Military Asylum for Disabled Volunteer Soldiers, in May, 1867. On July 11, 1867, Surgeon B. B. Breed had the negative taken from which the photograph is printed, and reported Smith to be in excellent health. In the spring of 1870 his health remained good. He had been pensioned and supplied with an artificial limb. The necrosed upper extremity of the femur is represented in the wood cut. A more detailed account of the earlier history of the case will be found with Photograph No. 29.



Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH NO. 204. *Recovery after Shell Wound of the Knee-Joint treated by Partial Primary Excision.*

Allison Shutter, Drummer, Co. C, 7th Pennsylvania Reserves, received, in one of the earlier of the seven days' battles before Richmond, in June, 1862, a shell wound of the left knee-joint. He was taken prisoner, and while he was in the enemy's lines it was decided that primary excision of the knee-joint should be performed on the field. The operation was commenced, but was interrupted by an advance of the Union troops, who regained the ground they had lost earlier in the day. The parts were brought in apposition, and the limb secured to a splint, and the patient was sent to Fort Monroe, and admitted to Hygeia Hospital on June 30th. On July 6th he was sent to Philadelphia on the steamer Daniel Webster. He was admitted, on July 7th, to the Satterlee Hospital. The wound cicatrized, and left a comparatively useful limb. This soldier was discharged February 5, 1863, by Surgeon I. I. Hayes, U. S. V., for "lameness resulting from a shell wound of the left knee." His name does not appear on the Pension List.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.



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PHOTOGRAPH No. 205. *Double Amputation of the Forearms for Injury caused by the Premature Explosion of a Gun.*

Private Samuel H. Decker, Co. I, 4th U. S. Artillery, while ramming his piece at the battle of Perryville, Kentucky, October 8, 1862, had half of his right forearm, and somewhat less of the left, blown off by the premature explosion of the gun. At the same time his face and chest were badly burned. Five hours after the accident, both forearms were amputated by the circular method, about the middle, by an Assistant Surgeon of the regular army whose name he cannot recall. He lay in the field hospital at Perryville until the wounds were partially cicatrized, when, on November 1st, he went to Louisville, Kentucky, and, on the 3d of November, 1862, he was discharged the service. About the middle of January, 1863, the stumps were completely healed. In the Autumn of 1864, Mr. Decker began to make experiments for providing himself with artificial limbs. He produced, in March, 1865, an apparatus hitherto unrivaled for its ingenuity and utility. He receives a pension of \$300.00 per year, and is a doorkeeper at the House of Representatives. On November 29, 1867, Mr. Decker visited the Army Medical Museum, where a number of photographs of his stumps were made. With the aid of his ingenious apparatus he is enabled to write legibly, to pick up any small objects, a pin for example, to carry packages of ordinary weight, to feed and clothe himself, and in one or two instances of disorder in the Congressional gallery has proved himself a formidable police officer.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

BY JOHN BURNET

IN TWO VOLUMES

LONDON

Printed by J. Sturges, at the Angel in St. Dunstons Church-yard, 1724

By Authority, W. Baskett, Printer to the Kings Most Excellent Majesty

IN TWO VOLUMES

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LONDON

Surgeon General's Office.
ARMY MEDICAL MUSEUM.

PHOTOGRAPH, 206. *Amputation of Forearms for Injury by a Brick Machine.*

Franklin Guy, brick maker, aged thirty-four years, had his hands caught in a steam press, October 12, 1868. The right hand was torn off just above the wrist, and the left hand at the wrist. He was conveyed to Providence Hospital, Washington, D. C., and five and a half hours after the reception of the injuries both forearms were amputated a little above the carpus by Dr. J. Ford Thompson. No hæmorrhage had taken place before the operation. The wounds healed with great promptitude. On October 23, the patient left the hospital, and in three and a half weeks, both stumps were completely healed. Mr. Guy visited the Army Medical Museum on January 13, 1869, and a photograph of the stumps was made, and he was advised to obtain the artificial limbs devised by Mr. Decker, a sufferer from the same mutilation, figured in Photograph 205.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

THE HISTORY OF THE

REIGN OF KING CHARLES THE FIRST

IN WHICH ARE CONTAINED THE
LIVES OF THE SEVERAL
KINGS OF GREAT BRITAIN
FROM THE DEATH OF KING
RICHARD THE FIRST TO THE
DEATH OF KING CHARLES THE FIRST
BY
JOHN BURNET
BISHOP OF SALISBURY
IN TWO VOLUMES
THE SECOND VOLUME
LONDON
Printed by J. Streater, at the Sign of the Gun, in St. Dunstons Church-yard, near St. Dunstons Church, in the County of Middlesex.
1694

Surgeon General's Office.
ARMY MEDICAL MUSEUM.

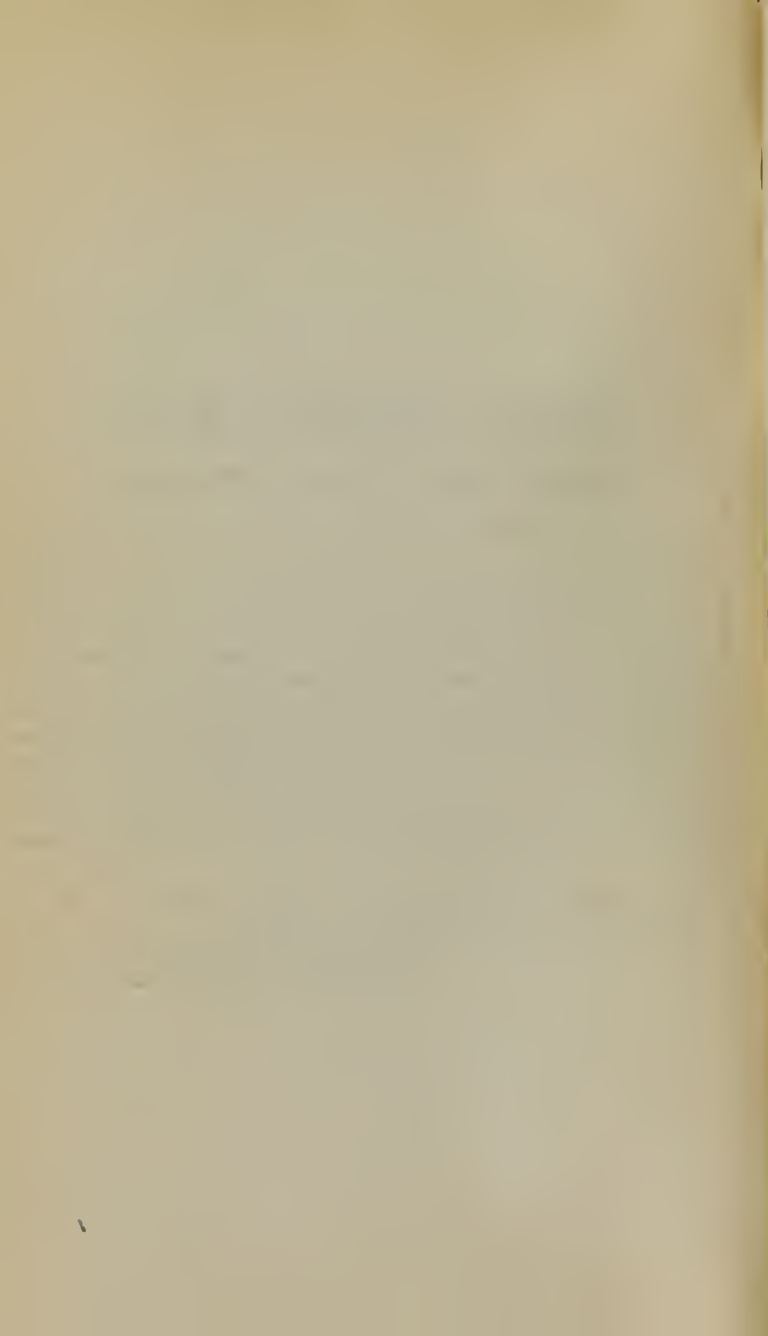
PHOTOGRAPH NO. 207. *Amputation of Both Arms for Gunshot Injury.*

This photograph represents a discharged soldier of many months, who was seen at the corner of Seventh street and Pennsylvania avenue, with a one armed companion. who turned a barrel organ, while this more mutilated man had suspended about his neck a chest for alms, the lid of which he opened by a backward movement of his left shoulder. He was photographed at the Museum in 1869. He gave his name as Sergeant Warden; but a history of the case is not found on the Surgical Records. After a long search it has been impracticable to identify the case with any of those of double amputation reported at this Office. A newspaper item states that this man was found dead in the streets of Buffalo in 1869.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.



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PHOTOGRAPH No. 208. *Excision of the Head and three inches of the Shaft of the Right Humerus for Gunshot Injury.*

Private John Brink, Co. K, 11th Pennsylvania Cavalry, aged nineteen years, was wounded May 21, 1863, by a musket ball, which struck two inches below the right acromian process and shattered the surgical neck of the humerus. He was with a scouting party which was fired upon by a guerilla band, near Windsor, Virginia. He was taken at once to the regimental hospital at Suffolk, and a few hours after the reception of the injury, Surgeon George C. Harlan, 11th Pennsylvania Cavalry, excised the upper extremity of the bone through a straight incision on the outside of the arm. Surgeon T. H. Squires, 89th New York, who saw the patient on June 2d, states that the patient was then doing very well, though he was pale; and adds that Dr. Harlan observed that he had lost much blood before and during the operation, and also mentioned that the splintering did not extend beyond the anatomical neck of the bone. On June 23d the patient was transferred to Chesapeake Hospital. On September 23d he was discharged, his disability being rated at one-half by Surgeon A. E. Stocker, U. S. Vols., and was pensioned from that date. He went to reside at Kingston, Luzerne County, Pennsylvania. The pension examining surgeon for that district, Dr. G. Urquhart, reported to the Pension Office, September 22, 1866, that the arm was "entirely powerless to raise it or to use it in any other position than hanging by his side." It is probable that the examiner was deceived; for the pensioner was employed as a telegraph operator, and always used his right hand, and could readily place that hand on his left shoulder. In March, 1868, Dr. Harlan, examined the patient in Philadelphia, and found that the arm was shortened one inch. Two or three inches of the upper extremity of the shaft must have been regenerated. The arm was nearly normal in size. A few months subsequently Brink visited the Army Medical Museum, and was examined by Dr. Otis and others, and it was found that the results of the excision were very satisfactory. The motion of the upper arm was better preserved than after most cases of excision of the head of the humerus, and the functions of the forearm and hand were unimpaired.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 209. *Old United Depressed Fracture of the Cranium.*

This photograph represents the inner and outer aspects of a segment of a cranium, deeply indented at a point above and external to the right frontal eminence, and exhibits the repair of a deeply depressed fracture of both tables. Outwardly there is a smooth, circular, cup like depression, and within three firmly consolidated triangular plates, the edges smoothed off, and the fissures filled in with callus. Unfortunately there is no account of this accident on record. The patient, Private Thomas Powers, Co. D, 30th Maine Volunteers, aged forty-one years, was admitted to the Jarvis Hospital, Baltimore, Maryland, on April 5, 1865, suffering from an attack of typhoid fever, for which he was treated. He had nearly recovered, when he suddenly grew worse again, and a decided inability to raise his right arm and leg could be noticed. These symptoms gradually increased, and at last his head was turned to the left side, and also his tongue, and he was entirely unable to move his right side. He remained in this condition for several days, being unable to take much medicine or nourishment, and died on the 2d of July, 1865. At the autopsy, the brain was found turgid with blood, with many minute extravasations. The right vertebral artery was plugged by a clot. The specimen, No. 2619, Surgical Section, was presented by Surgeon De Witt C. Peters, U. S. Army. In endeavoring to trace this case, it has been found that this patient was a "substitute," that he was "mustered in" July 28, 1864, and probably did not reach the battle field till many weeks afterwards, if at all: but it must have required a period of much more than twelve months to have brought about the extent of repair that is here observed. The closure of solutions of continuity of the skull by complete ossification rarely takes place, and when it does, always occupies, as Rokitansky observes, a very long period. It is probable that long prior to his enlistment as a substitute that this man had received a punctured fracture of the frontal region, which consolidated, and escaped the notice of the examining surgeon, as it subsequently escaped the notice of the hospital physician.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 210. *Successful Primary Excision of the Head and Neck of the Right Femur.*

This case is fully described in the Report on Excisions at the Head of the Femur for Gunshot Injury in Circular No. 2, S. G. O., January, 1869, Case XXX, page 32. There has been much dispute as to who should have the credit of the operation. It is claimed by Dr. N. Y. Leet, late Surgeon 76th Pennsylvania Volunteers, and by Surgeon C. M. Clark, 29th Illinois Volunteers. The statement of Dr. Leet is corroborated by the entries on the register of the Tenth Corps Field Hospital, and by reports signed by Surgeon Barlow, 62d Ohio, and Surgeon Kitlinger, 100th New York. That of Dr. Clark is sustained by the patient, and by his attending physician Dr. G. D. Bailey, of Havana, N. Y., where the patient now resides.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH NO. 211. *Penetrating Gunshot Fracture of the Cranium.*

An unknown rebel was admitted to Lincoln hospital on July 17, 1864, with a gunshot penetrating wound of skull, received at the demonstration against Fort Stevens, Washington, D. C. He died the same day. The post-mortem examination revealed a wound of the scalp two inches above the right ear, and one-half inch in diameter. The ball had entered the skull through the squamous portion of the right temporal bone, making an orifice through both tables, one and a half inches perpendicularly, and one inch horizontally. A fissure extended from the upper and anterior edge of this orifice, forwards and downwards the whole length of the squamous suture, and another at the anterior and inferior edge extended one and a half inches forwards and downwards to the tubercle. The brain in the region of the wound was pulpy, and contained a large number of spiculae of bone which had been driven in by the ball. The vessels of the left hemisphere were very much injected, and the whole brain was softened. No ball could be found in the skull. The specimen was presented to the Army Medical Museum by Acting Assistant Surgeon H. M. Dean, and is numbered 2870 of the Surgical Section.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

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PHOTOGRAPH No. 212. *Gunshot Fracture of the Cranium caused by a Musket Ball striking with great obliquity.*

Private Edward Volk, Co. D, 55th Ohio Volunteers, was wounded at the second battle of Bull Run, August 30, 1862, by a musket ball, which struck the forehead at a point half an inch above the right eyebrow, comminuting and carrying away both tables of the os frontis, to the extent of one and one-fourth by two and one-fourth inches. He remained on the battle field six days, and was then conveyed to Washington, D. C., and admitted to the Emory Hospital on the 6th of September. About one-third of the missile was found lodged against the fractured edge of the frontal bone. One-half of the plates which compose the frontal sinus were found in broken fragments piercing the brain, and were carefully removed. About a teaspoonful of brain matter escaped. There was no cerebral disturbance, and the patient was perfectly conscious. On September 8th, hernia cerebri appeared, the protrusion being about the size of a walnut. On the 19th the edges of the wound were healthy; the hernia had receded, but diarrhœa supervened, which greatly reduced the patient's strength. He died on the 25th of September. The post-mortem examination revealed a more extended fracture than was supposed to exist, reaching through the parietal to within two inches of the occipital bone. The orbital plate of the right superior maxillary was fractured and depressed, and a fissure an inch long ran down the body of the bone. The specimen was contributed by Surgeon W. Clendenin, U. S. V., and is numbered 276 of the Surgical Section.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 213. *Gunshot penetrating Fracture of the Frontal Bone.*

Thomas Brennen, Private, Co. I, 65th New York volunteers, aged thirty years, was struck at the battle of Cedar Creek, on October 19, 1864, by a musket ball, about the middle of the frontal bone. He was taken to Baltimore and admitted into the Jarvis U. S. A. General Hospital on the 24th, and died on the following day. For two days previous to his death, he had hemiplegia of the left side. At the autopsy twenty-four hours after death, the frontal bone was found to have been perforated near the right prominence. Two pieces of bone, each the size of a dime were driven into the dura-mater for the distance of half an inch. The brain substance near the seat of injury was very much softened. The left hemisphere was covered with clotted blood. The veins of both hemispheres were engorged with blood. A piece of the bullet was found in the third ventricle of the left hemisphere. The specimen was presented to the Army Medical Museum by Acting Assistant Surgeon B. B. Miles and is No. 3413 of the Surgical Section. It consists of the vault of the cranium, perforated in the frontal region by an opening three-fourths by one and a fourth inches. Long fissures extend from this perforation, and on its left edge is a partially fractured fragment of the inner table, an inch long and a fourth of an inch wide, depressed quarter of an inch. On the right margin of the perforation the outer table is removed leaving a sharp edge. It is probable that the ball split, a part passing out externally.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 214. *Cranium Perforated by a Musket Ball.*

This cranium was presented to the Army Medical Museum by Surgeon Jerome B. Green, U. S. V., and is numbered 830 of the Surgical Section. A musket ball entered at the centre of the left branch of the coronal suture, and passed out at the posterior inferior angle of the right parietal bone, the opening of entrance being three-fourths of an inch, and that of exit one and one-fourth inches in diameter. There is a fracture of the right orbital plate of the frontal, of the squamous portion of the right temporal, and of the body of the right superior maxilla, probably by conire coup. A fracture of the occipital bone extends from the opening of exit to the right jugular foramen. The frontal suture remains distinct, though the skull is that of a middle-aged man. The specimen is believed to have come from the 12th Army Corps hospital after the second battle of Bull Run.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 215. *Perforation of the Cranium by a Musket Ball.*

This cranium was picked up on the first Bull Run battle-field by Dr. F. Schaffhirt, and presented to the Army Medical Museum. It is numbered 3251 of the Surgical Section. It displays a fracture caused by a musket ball which, entering at the right fronto-parietal suture, and temporal ridge, and fractured the os frontis in a long fissure, which runs in front one inch above the orbits, and downwards through the greater wing of sphenoid and squamous portion of the left temporal into the mastoid process. One fissure branches off above the left orbit and downwards through the maxillary sinus. Another fissure passes posteriorly from the wound of entrance and upwards through the right to the left parietal protuberance. Another fissure downwards through the right auditory meatus has divided the petrous bone. Yet another fissure passes backwards through the upper portion of right temporal into the occiput. The ball passed out at the upper part of occipital near the inter-parietal suture.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 216. *Gunshot Fracture of Skull.*

At a post mortem examination of the body of an unknown soldier, at Lincoln Hospital, September 22, 1864, it was ascertained, that a conoidal musket ball had entered about one and a half inches above the left ear, causing a compound comminuted fracture of the squamous portion of the temporal bone. The ball was found imbedded in the lower portion of the parotid gland. The vessels of the meninges of the brain were very much injected. The middle lobe of the left hemisphere was softened to the middle corner of the lateral ventricle, which contained a small quantity of fluid, resembling blood. The specimen was contributed to the Army Medical Museum by Acting Assistant Surgeon H. M. Dean, and is numbered 3254 of the Surgical Section. It is a section of the cranium, showing penetration and fracture of the left temporal bone just above and including the meatus auditorius externus, with fracture of the occipital by contre-coup, caused by a conoidal ball, which is attached. The opening is just above the root of the zygoma and is three-fourths of an inch in diameter. The condyle of the lower jaw and the posterior half of the glenoid fossa are carried away, together with the extremity of the petrous portion of the temporal bone, the line of fracture passing through the internal meatus auditorius. From the left jugular foramen two lines of fracture pass to the foramen magnum, one in front of and the other behind the condyle. On the right side the occipital bone is traversed by a fracture which runs from the foramen magnum to the posterior angle of the right parietal.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS.

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 217. *Successful Intermediate Excision of the Right Knee-Joint.*

Captain Charles Knowlton, 10th Louisiana Regiment, of Ewell's Corps, aged twenty-six years was wounded at Mine Run, Virginia, November 27, 1863, by a conoidal musket ball, which grooved the outer condyle of the right femur, barely touched the cartilage, opened the synovial sac, was deflected, and lodged near the upper edge of the patella whence it was removed, on the field, through an incision, after the wounded man had walked half a mile to the rear leaning on the shoulder of one of his men. He was then transported over rough roads in an ambulance to the nearest railway station, and conveyed to Richmond and entered General Hospital No. 4, two days after receiving the injury. His condition on admission was good. There appeared to have been no hæmorrhage. The movements of the knee-joint were perfect. Moist dressings, absolute rest, and saline aperients were ordered. On December 2d a serous or synovial discharge from the wound was observed. This became slightly puriform on the following day. Still there was no mark of inflammatory reaction. On December 8th there was much pain in the joint and the discharge was increased. His pulse rose to 104. On the 9th the joint was excessively inflamed and the pulse was 128. Surgeon James B. Read, P. A. C. S., in consultation with Surgeons C. B. Gibson, and M. Michel decided that excision of the joint was expedient. The operation was performed by Surgeon Read. An elliptical incision with its concavity upwards was made to extend from one condyle to the other passing below the patella, and dividing its ligament. The joint was then laid open, and an inch and a half of the condyles of the femur, and an inch of the tibia were sawn off. The patella was also removed. No ligatures were required. The section of the femur was made obliquely downwards and backwards; the section of the tibia was the reverse of this, so that when the extremities were approximated the limb was slightly flexed. The synovial sac was reddened and contained a turbid flocculent fluid. The sawn ends of the bones were then wired together. The limb was then placed in a long well padded fracture box. After a few days a long bracketed splint was substituted for the fracture box. He had a liberal stimulating diet of eggs, oysters, and beef-tea, with half an ounce of brandy every two hours. The patient was restless and irritable, and on December 16th, and again on the 20th, had venous hæmorrhage to the extent of a few ounces, the bleeding being arrested on both occasions by the use of persulphate of iron. There was uneasiness about the joint and burrowing of pus, until Acting Assistant Surgeon Howell D. Thomas suggested a suspension of the limb by Smith's anterior splint. By January 3d the internal half of the horse-shoe incision had closed. The patient enjoyed an excellent appetite, which was appeased by venison, turkey, partridges, and other hearty food and a pint of porter daily. By the middle of February there was only a small fistulous orifice remaining of the wound, which discharged a thin, sero-purulent matter. A starch bandage was now applied, with an aperture over the unhealed portion of the wound. All the wires had been removed at this date except one. In March the patient sat up daily and attempted to walk on crutches. In April he was discharged from the hospital; his limb was supported by a leathern splint. There was still slight motion between the femur and tibia; but the ligamentous union appeared quite firm. He subsequently went to the West Indies. At Nassau, Dr. Hunt, of New Orleans, removed the starch bandage and found the consolidation was very firm. In a few months Captain Knowlton laid aside his crutches, and walked very satisfactorily. He returned to Louisiana in 1866. He was able not only to walk almost as well as ever, and to dance even the round dances. His address as a purser on one of the Pacific mail steamers having been discovered, Surgeon Charles McCormick, U. S. Army, at San Francisco, examined his limb, December 17, 1868, and had made the negative from which this photograph is printed. There was no evidence of disease about the cicatrix; The muscular development of the limb was good; and the inability to flex it at the knee was the only inconvenience suffered, a result as gratifying as it is unusual.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

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PHOTOGRAPH No. 218. *Perforation of Stomach by a Conoidal Musket Ball.*

Private John Brown, Co. I, 9th Minnesota Volunteers, aged twenty-eight years, was wounded in front of Nashville, Tennessee, December 16, 1864, by a conoidal musket ball, which penetrated the left chest at the cartilaginous junction of the eighth and ninth ribs, three inches below the nipple. On the night of the same day he was admitted to Hospital No. 8, Nashville. The shock of injury was very great, and he suffered intensely from sharp pain in the chest and abdomen. There was, also, paralysis of motion and of sensation in the left lower extremity. Expectant treatment was used, but the patient soon collapsed, and died at 8.30, P. M., on December 17, 1864. At an autopsy, twenty-two hours after death, pleuritic adhesions were found; the capacity of left lung was much diminished; the abdominal cavity showed evidences of intense peritonitis, and the viscera were softened and of a dark green color. The missile had passed downwards, inwards and backwards, and piercing the diaphragm near its anterior border, leaving an opening two inches in length through which a portion of omentum had escaped into the lower cavity of thorax, perforated the splenic end of the stomach, leaving an interval of three inches between the openings; thence, it passed through the transverse colon, and fecal matter, with a large amount of escaped blood, was found in the abdominal cavity; it then struck the left anterior side of the fourth lumbar vertebra, grooving deeply its left border, passed through the spinal cord to its left surface, fractured the left horizontal and spinous processes of the third lumbar vertebra, and was found immediately to the right of the second lumbar vertebra, underlying the integument and fascia of that region, very much changed from its original shape. The injured vertebræ are shown in Specimen 3748, Army Medical Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 219. *Hypertrophied Prostate Gland and Bladder, containing twelve large Uric Acid Calculi.*

This specimen was taken from a private patient, aged sixty-seven, a native of Frederick, Maryland, who died August 3, 1857. Besides the large concretions, the bladder contained numerous hemp-seed calculi, many of which were discharged during life. In 1849 more than three hundred were discharged through the fenestra of a very large catheter. The lobes of the prostate are much enlarged. On the right and middle lobes are several ulcers. The walls of the bladder are much thickened. The specimen measures as follows: from fundus to membranous portion of urethra, six inches; across fundus and body of bladder, in which the calculi are contained, four and one-eighth inches; from external wall of fundus to top of middle lobe, two inches and seven-sixteenths; thickness of walls of bladder, seven-eighths of an inch. The width of the left lobe of enlarged prostate is one inch; that of the right lobe two inches. The width of the divided and degenerated prostate is four inches and ten-sixteenths. An analysis of the calculi by Dr. B. F. Craig shows that they consist almost entirely of uric acid. The specimen with the history was contributed by Dr. Robert K. Stone, of Washington.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 220. *Ligamentous Preparation of the Bones of the Left Foot and Lower Portions of the Leg Bones, from a Case of Confirmed Talipes Varus.*

This specimen, No. 852, Army Medical Museum, was taken from a Freedman, who died of syphilis on November 25, 1866, at the Freedman's Hospital in Washington. It was contributed, with the history, by Hospital Steward A. M. Squier, U. S. A. The foot is completely inverted and the os calcis, which is small, is nearly parallel with the shafts of the leg bones, and presents an irregular, knotted appearance. The patient walked chiefly upon the anterior surface of the calcaneum and the astragalus and dorsal surfaces of the other tarsal bones. The metatarsals are unusually slender, and the great toe overlaps the two adjoining ones.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 221.

This is a representation of Specimen 5188 of the Surgical Section of the Army Medical Museum, showing the bones of the right leg and foot, with a luxation forward of the astragalus. The fibula exhibits an extraordinary concavity in its external middle third. The specimen is from the Van Wyck private collection, and was received with the Gibson Collection.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 222. *Ligation of the Abdominal Aorta for Aneurism.*

William Fancy, a negro of thirty years, a wood chopper, was admitted to the Howard Grove Hospital, at Richmond, Virginia, March 20, 1868. He stated that a week before while pursuing his ordinary avocation he felt something give way in the lower part of his abdomen, a sensation followed by nausea and great pain. Dr. Hunter McGuire examined, and found in the left iliac and hypogastric regions an aneurismal tumor the size of a goose egg. No pulsation could be discovered in the left femoral; but no change in the temperature or size of the left leg was observed. His general health was good. The patient said that the tumor gradually increased in size and was daily growing worse. Rest in bed, with digitalis, iron, acetate of lead and opiates seemed to alleviate the pain and to diminish the size of the tumor; but the relief was but temporary. On March 26th, compression of the aorta was resorted to; but had to be discontinued because of the tenderness of the tumor. On March 30th, at 1, P. M., Dr. McGuire, after consultation with Professors Joynes, Wellford and others, determined to cut down and to ligate the common iliac above the aneurism. When the aneurism was exposed, it was found to involve the whole of the common iliac, and the aorta near its bifurcation. The sac was very thin. Dr. McGuire now determined to tie the aorta, when the sac suddenly ruptured, although it had been handled with the utmost delicacy, and a profuse discharge of blood took place. The aorta was instantly compressed by the finger an inch above the tumor, and surrounded by an assistant with a ligature and tied. About a pint of blood was removed from the cavity of the abdomen. The lips of the wound were brought together. Sutures and bandages were applied. A stimulating enema was given. The patient was put to bed and the lower extremities were surrounded by warm applications. In a few moments the effects of chloroform passed off, and slight reaction took place. He complained much of numbness of the lower extremities. The temperature of the axilla never rose above 96. He died half an hour after midnight, eleven and a half hours after the operation. At the autopsy, the ligature was found to embrace the aorta at the origin of the inferior mesentery and included the left ureter. The rent in the sac was just over the bifurcation of the aorta. A careful report of the case is published by Prof. H. McGuire in the *American Journal of the Medical Sciences*, Vol. LVI, p. 415, October, 1868. The pathological specimen was contributed to the Army Medical Museum by Dr. McGuire, and is numbered 5256, Section I.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bo't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

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PHOTOGRAPH No. 223. *Vesical Concretions resulting from Gunshot Injuries.*

This photograph represents a series of seven specimens of foreign bodies removed from the bladder, all of which were directly or indirectly the result of gunshot injuries. These cases will be fully described in the forthcoming Surgical History of the War. A simple memorandum is here given. The left hand figure of the upper row, (Specimen 5019) is a round leaden bullet slightly encrusted, removed from the bladder of a South Carolinian soldier in 1865, by Dr. F. T. Miles, of Charleston. The man was struck at the first battle of Bull Run, July, 1861, above the pubes. The wound healed kindly and he returned to duty, and fought through the war, and never had any dysuria until the march to Appomattox Court House in April, 1865, when suddenly he had extreme pain in the bladder, bloody urine; and other symptoms of a foreign body in the bladder. A few weeks subsequently, the encrusted ball was successfully removed by lateral lithotomy. The middle figure of the upper row, (Specimen 4712) represents half of a urinary calculus formed after a gunshot wound of the fundus of the bladder, with inspissated mucous probably as its nucleus, and consisting of mixed phosphates. It was successfully removed by lateral lithotomy by Prof. J. J. Chisolm. The right hand figure, (Specimen 5520) represents an iron shrapnel ball encrusted with uric acid and triple phosphates, which was successfully removed by Dr. A. N. Dougherty, at the New Jersey Home for Disabled Soldiers, in August, 1868. The man was wounded in April, 1865. The operation done by Dr. Dougherty (formerly Medical Director of the Second Army Corps) was by an external incision as for bilateral lithotomy, with a deep incision as in the lateral method. The operation was very successful. The concretion weighed one ounce and twenty-three grains avoirdupois. The left hand figure in the lower row, (Specimen 5011) represents a large phosphatic calculus sawn in half. Its nucleus is a portion of the pubic bone, which was driven into the bladder by a musket ball, which passed out through the rectum. Three and a half years after the reception of the injury, this calculus was removed by lateral lithotomy by Prof. Hunter McGuire, who has given an account of the case in the *Richmond Medical Journal*, of April, 1868. At the time of its removal, the calculus weighed two and a quarter ounces. With a good lens, the Haversian canal in the bone which forms the nucleus can be readily made out. The two middle figures in the lower row, (Specimen 2567) represent two uric acid calculi found *post mortem* in the case of a soldier who was shot through the bladder at the second battle of Bull Run, by a musket ball, which entered above the pubes and passed downwards and backwards through the coccyx. The specimen was contributed by Surgeon D. W. Bliss, U. S. Vols. The right hand lower figure, (Specimen 88) represents one view of a fragment of a grenade removed from the bladder by Surgeon J. F. Randolph, U. S. Army. The case is recorded in the Surgical Report in Circular No. 6, Surgeon General's Office, 1865, p. 29.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

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PHOTOGRAPH NO. 224. *Four Urinary Calculi in the collection of the Army Medical Museum.*

All the figures in this group are much reduced. That on the left represents a very large mulberry calculus. Its length is two and a quarter inches, breadth one and seven-eighths inches, thickness one and five-sixteenths inches, and weight 2.48 ounces Troy. It was removed by lateral lithotomy by Dr. N. S. Lincoln, of Washington, who has published a description of the case in the *Richmond and Louisville Medical Journal*. The next figure, (Specimen 5058) represents a calculus presented to the late Dr. William Gibson, in 1843, by Dr. Stout, of Easton, Pennsylvania. The nucleus is a large darning needle. (See Gibson's *Surgery*, 7th Edition, Vol. II, p. 230.) It was removed from the bladder of a negro girl. The next figure, (Specimen 4833) represents a phosphatic calculus sawn asunder, and weighing 27.054 grammes. It was obtained by exchange from the National Medical College, at Washington. The nucleus was a watermelon seed. It was removed by lithotomy from the bladder of a nasty fellow. The right hand figure, (Specimen 4866) represents a very large ovoid phosphatic calculus, weighing 159.53 grammes. It was successfully removed from the bladder of a man from Ohio, by Surgeon J. G. F. Holston, U. S. Vols., by lateral lithotomy. Its surface is quite smooth, and its composition unusually homogeneous. It is rarely that so large a concretion is removed by lithotomy without being crushed and removed in fragments. The long diameter of this calculus is two and three-eighths inches, and the smallest diameter is two inches. There are larger vesical calculi in the collection, but they were removed after death.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 225. *Transverse Fracture of the Femur in the Middle Third by an unknown Missile.*

Elijah Brown, a colored civilian, aged fifty years, and by occupation a farm laborer, was injured August 15, 1864, at City Point, by the explosion of ordnance stores. An unknown missile produced a compound fracture of the femur in the middle third, leaving a wound similar to that made by a conoidal ball. He was sent to Philadelphia, and, on August 20th, was admitted to Satterlee Hospital. No foreign body could be detected in the wound. The limb was shortened some two and a half or three inches; the thigh was much swelled; and there was a profuse discharge from the wound, and a commencing bed sore over the sacrum. The patient's bowels were loose, and he was thin and debilitated, but, withal, was cheerful and had a good appetite. An angular wire splint, thought not to meet the required indications, was removed, and a straight wooden one, with the counter-extending band in the perineum, was substituted. Fifteen drop doses of tincture of iron were also administered three times a day. This treatment continued until August 27th, when the splint was removed, and extension made by means of weights suspended from leg by adhesive strips, husk bags being placed along either side. This arrangement, along with the straight board splint, was extremely inconvenient, and could not be kept in proper order. The bed sore had become the source of great discomfort, the discharge being profuse and exhausting. Simple dressings and expectant treatment were used. On September 1st, all appliances were removed from the leg. The patient was much reduced by suppuration from the wound and from the bed sore. He was extremely restless, and there were no signs of union of the fragments. A profuse diarrhoea withstanding all treatment now set in, and continued until the patient's death, which occurred at 8, A. M., on September 12, 1864. The specimen, showing considerable exfoliation near the two ends of the fragments, was contributed, with the history, by Acting Assistant Surgeon A. L. Eakin.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 226. *United Simple Fracture of the Right Femur of a Mound Builder.*

In 1868, Acting Assistant Surgeon A. J. Comfort made a minute and painstaking exploration of several tumuli in the vicinity of Fort Wadsworth, Dakota Territory. He was fortunate enough to obtain from these mounds, which, from the large size of the trees upon their summits, were evidently of great antiquity, about forty human skeletons, more or less complete, which he sent to the Army Medical Museum. They furnish several examples of fracture of the long bones. In the united fracture of the long bone of the femur which is exhibited in the photograph, there was less than two inches shortening, the length being fifteen and seven-eighths inches, while the companion femur, which shows a kind of post-mortem fracture, is seventeen and three-fourths inches in length. The angular deformity is slight, and the result is not discreditable to prehistoric surgery. The bones are yellow, and very fragile. A full account of Dr. Comfort's interesting researches, together with other archæological reports, is in process of compilation at this Office for publication in the next volume of the Smithsonian Contributions to Knowledge.

Photographed at the Army Medical Museum.

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GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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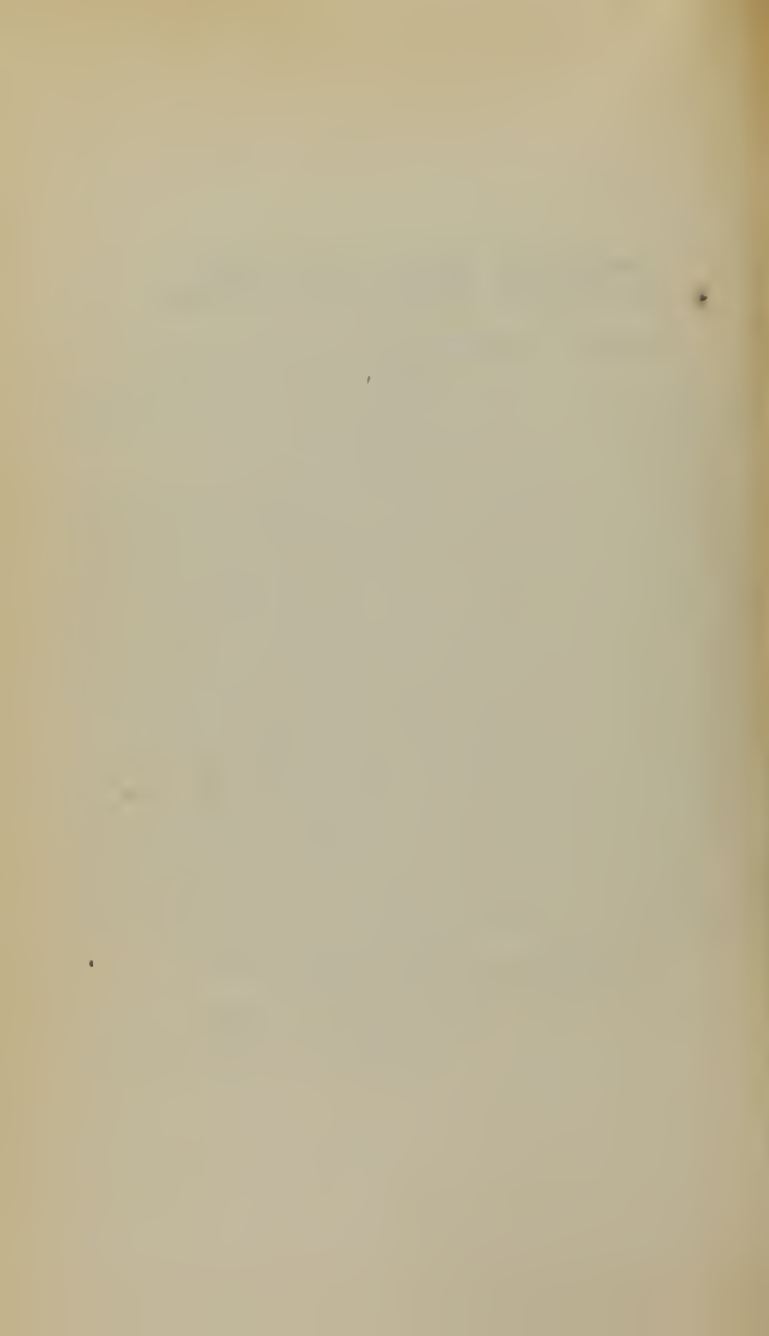
PHOTOGRAPH No. 227. *Distal Extremity of the Right Femur showing a Perforating and Longitudinal Fracture, with Comminution, by a Spherical Musket-shot.*

Private Reuben Donelly, Co. A, 21st Ohio Volunteer, was wounded at Bull Run, August 30, 1862, by a spherical musket-shot, which entered the right thigh just above the patella, and, passing directly through the limb from front to rear, divided the condyles, split the shaft upward several inches, and comminuted the bone at the intercondyloid notch. He was admitted to the King Street Hospital at Alexandria on September 3, 1862, and, two days afterward, Surgeon J. E. Summers, U. S. A., amputated the thigh at the junction of the lower and middle third by the antero-posterior flap operation. The case progressed favorably until October 3d, (a cold, rainy day) when the patient had a severe chill, which recurred on the following afternoon. Tonics and stimulants were freely administered, notwithstanding which he gradually sank; absorption of the new granulations took place; the edges of the flaps retracting, left the bone exposed; osteomyelitis occurred; and there was extreme emaciation, with great prostration, and inability to take or retain nourishment or stimulants, resulting in the death of the patient October 20, 1862. The specimen and history were contributed by Acting Assistant Surgeon Thomas O. Barker, U. S. A.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 228. *Amputated Portion of the Right Femur, showing United Fracture, with a Fragment of Lead imbedded in the Callus.*

Private Jesse M. Jones, Co. K, 21st Indiana Volunteers, aged twenty-nine years, was wounded at Baton Rouge, Louisiana, August 5, 1862, by a musket ball, which fractured the right femur at the junction of middle and upper third. He was taken to the regimental hospital the night after, remained a day, and was thence sent by a transport steamer to New Orleans, the limb meanwhile being supported by bandages and pillows. On arrival, August 7th, he was admitted to the St. James Hospital, where a long splint was applied, seventeen days after the reception of the wound. The patient was discharged the service April 15, 1863, since when, up to January, 1869, he suffered much pain from frequent exfoliations and abscesses. At the latter date, he entered Providence Hospital at Washington; and on the 23d, Doctor D. W. Bliss, late Surgeon, U. S. V., amputated the thigh in the upper third, and afterwards contributed the pathological specimen to the Army Medical Museum. It is No. 5558 of the Surgical Section, and shows great deformity and exfoliations on posterior aspect. On March 9, 1869, he visited the Museum, recovered, and his photograph was taken to accompany the specimen. (A. M. M. Card Photographs, Vol. 1, page 27.)

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 229. *Lower Half of the Left Femur Successfully Amputated.*

Private C. H. Bowen, Co. A, 27th Indiana Volunteers, had his left femur fractured by a musket ball, at the battle of Antietam, on September 17, 1862. He was admitted to Hospital No. 1, at Frederick, Maryland, where Buck's apparatus was applied. Nine months subsequently, he was removed to Baltimore. There were numerous abscesses, and the patient underwent two operations for the removal of necrosed bone. On September 7, 1863, he was discharged the service, with the limb greatly deformed. He received a pension, and was employed in the Interior Department. Owing to recurrence of abscesses he was admitted to Providence Hospital in the autumn of 1867, and on November 11th, the limb was amputated in the middle third by Dr. D. W. Bliss. The wound healed well, and a photograph was taken at the Army Medical Museum on January 9, 1868, at which time the stump was firm and healthy. The specimen, with the history, was contributed by the operator. The fragments are considerably overlapped, having undergone unusual disturbance, and the amount of callus exceeds what is necessary for complete union.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 230. *The Greater Portion of the Right Femur, exhibiting an oblique Fracture, from a Conoidal Musket Ball impinging against the Inner Aspect, a little below the Middle.*

Private James H. Wager, Co. H. 125th New York Volunteers, aged twenty-one years, was wounded at the battle of Hatcher's Run, on April 2, 1865, by a conoidal musket ball which passing upward and backward and producing two wounds, fractured the right femur at the junction of the lower and middle third. He was sent to the field hospital of the 2d Corps at City Point, Virginia, and, on the 4th, was transferred to the Douglas Hospital at Washington, where he arrived, on the 5th, in a very low condition, being anæmic and debilitated, with rapid pulse, flushed cheeks, and icterus. The knee joint was also much swollen. The following day he was etherized and the wound thoroughly examined by Acting Assistant Surgeon C. Carvallo, who extracted pieces of bullet from each wound. Stimulants and concentrated nourishment were freely administered without effect, and the patient died from exhaustion on April 10, 1865. At the autopsy, twelve hours after death, decomposition was rapidly setting in; the thoracic and abdominal viscera appeared healthy; the fractured femur was disarticulated and sawn longitudinally, the medullary substance appearing inflamed, red and hardened. The case is interesting from the number of pieces into which the bullet was split; viz., one which made its exit, two taken from the wounds, and one found near the bone at the *post mortem*, making four in all. The pathological specimen was contributed by Assistant Surgeon W. F. Norris, U. S. A., and is No. 3168 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 231. *Lower Half of Right Femur. exhibiting an Osteoplastic Operation and a Secondary Amputation.*

Private Grey Y. Barrett, Co. F, 5th New Hampshire Volunteers, aged twenty years, was wounded at Fredericksburg on December 13, 1862, by a musket ball, which entered the outer condyle, and, escaping posteriorly in the middle of the lower third of thigh, left the bone much comminuted at its exit. He was admitted to the hospital of the First Division, Ninth Corps, where, on the 16th, Assistant Surgeon J. W. S. Gouley, U. S. A., amputated the femur a short distance above the wound of entrance, the patella being included in the anterior flap; the line of section not having escaped the wound, another third of an inch was removed; the femoral surface of the patella was then sawn off, and the two cut surfaces of the bone were brought in apposition. The laminated portion of the femur, however, was fractured half an inch above this point, and fissures extended two inches further. On the sixth day sloughing commenced; on the eighth, signs of gangrene were noticed; and on the ninth, December 25th, Surgeon J. P. Prince, 36th Massachusetts Volunteers, amputated the femur in the middle third, on account of the burrowing of pus, for secondary hæmorrhage from the propliteal. No plastic deposit could be observed immediately after the operation. On the next day he was transferred to Washington, and admitted to the Douglas Hospital, where he died on December 27, 1862. The pathological specimen, which is No. 536, Surgical Section, was contributed, with the history, by Surgeon J. P. Prince, 36th Massachusetts Volunteers.

Photographed at the Army Medical Museum.

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ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 232. *Shaft of the Left Femur, exhibiting Comminution in the Middle Third, with Extensive Longitudinal Fracture, produced by a Conoidal Musket Ball.*

Private Thomas Holmes, Co. D, 1st Michigan Sharpshooters, aged twenty years, was wounded at Spottsylvania Court House on May 10, 1864, by a conoidal musket ball, which entered the inner aspect of the left thigh, one inch above the patella, and, passing upwards and outwards, made its exit on the outer surface of thigh at the middle third. He was carried nine miles in an ambulance to the general hospital at Fredericksburg, and was, afterwards, admitted to the Armory Square Hospital at Washington on May 26, 1864. No apparatus had been applied to the limb. Shortly after admission chloroform was administered, but, after a consultation, it was decided that he could not bear amputation. The injured limb was then placed in a fracture box, and strong stimulants were given. The patient lingered until June 10, 1864, when he died from exhaustion. The pathological specimen, which is superficially necrosed, was contributed, with history, to the Army Medical Museum by Surgeon D. W. Bliss, U. S. V., and is numbered 2486, in the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 233. *Reproduction of the Metacarpals and Phalanges after Necrosis.*

The specimen is from the Gibson Collection, and is numbered 5251 of the Surgical Section, Army Medical Museum.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 234. *Excision of Five Inches of the Shaft of the Right Humerus.*

Private Herman L. Maynard, Co. C, 17th New Hampshire Volunteers, aged thirty-one years, was wounded at Olustee, Florida, on February 20, 1864, by a conoidal musket ball, which entered the right arm at the middle and outer aspect, and fractured the humerus at the upper third. On the 25th, he was admitted from Jacksonville, Florida, to the hospital at Hilton Head, South Carolina, where the arm was unsuccessfully treated with splints. On March 9th, being etherized, a portion of the bone, about five inches long, was excised. The arm was much swollen, very painful, and the soft parts were much lacerated. His constitutional condition was good. Water dressings and a concave coaptation splint were applied. In about two months, there was sufficient deposit of bone to render the arm firm without shortening. On June 25th, the patient was admitted to the Central Park Hospital, New York City. The wound was in a sloughing condition, and numerous fragments of exfoliated bone were removed. He was discharged the service on September 7, 1864, at which date the wound was reported healed and the arm firm. On September 14, 1864, Pension Examiner J. Clough reported the wound discharging profusely, and, every few days, pieces of bone were extracted. The arm was ankylosed, and he rated his disability total and doubtful. On August 12, 1869, a photograph was taken, which was contributed to the Army Medical Museum by Dr. J. O. Webster, of the National Asylum for Discharged Volunteer Soldiers at Augusta, Maine. The limb was almost as strong as its fellow, but it had shortened nearly two inches, and the wound of exit had not healed.

Printed at the Army Medical Museum.

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Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 235. *Partial Recovery from a Compound Fracture of the Left Thigh in the Upper Third, caused by a Conoidal Musket Ball.*

Private Thomas Welch, Co. F, 6th Maine Volunteers, aged twenty years, was wounded on November 7, 1863, at Rappahannock Station, Virginia, by a conoidal musket ball, which entered the front aspect of the left thigh in the upper third, fractured the femur, and escaped at a point nearly opposite. When admitted to Armory Square Hospital, on November 9, 1863, his limb was slung in a frame, with a weight suspended from the foot, which was removed a few days afterward. Two pieces of bullet were extracted, and cold water dressings applied. On May 26, 1864, he was sent to Chester Hospital, Pennsylvania, and on March 7, 1865, was transferred to the Satterlee Hospital at Philadelphia. He was discharged the service March 29, 1865, by expiration of enlistment, and pensioned. On August 29, 1866, Pension Examiner J. Cummiskey reported the injured limb shortened some three inches, and completely ankylosed at the knee joint. Exfoliation was still going on and the patient suffered much pain, and was obliged to use a crutch, the limb being entirely useless. On August 20, 1869, at the time the photograph was taken, he had good use of the limb; but it felt weaker than the other, and was apt to swell if he walked much. He then walked without a cane, and was an inmate of the National Asylum for Disabled Volunteer Soldiers at Augusta, Maine.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 236. *Partial Recovery after Compound Comminuted Fracture of the Femur by a Conoidal Bullet*

Private Michael Murtha, Co. H, 159th New York Volunteers, aged eighteen years, was wounded on April 14, 1863, in an engagement at Irish Bend, Louisiana, by a conoidal musket ball, which entered the right thigh anteriorly in its upper third, and escaping at a point nearly opposite, lodged in the pants. On the 17th, he was admitted to the Marine Hospital at New Orleans, where the limb was treated by sand bags, and by manual extension once daily. It united in bad shape, and another Surgeon coming in charge, it was rebroken, and Boyer's splint was applied. He was able to bear his weight on it about eight months afterward. On March 9, 1864, he was transferred to the Veteran Reserve Corps, the limb having shortened three inches. On August 24, 1864, he was admitted, for chronic ulcer, to the Angur Hospital at Alexandria, Virginia, from Camp Distribution, and on August 27th was transferred to the Second Division Hospital at the same place. He was discharged the service May 31, 1865, and was pensioned. On July 28, 1865, Pension Examiner Charles Rowland reported that the patient suffered from a large abscess, from which many pieces of bone had been extracted. He was quite lame, being obliged to walk with a crutch. His habits were moral and temperate. His disability is rated total and permanent. On August 14, 1869, at which time a photograph was taken, the patient was an inmate of the National Asylum for Disabled Volunteer Soldiers at Augusta, Maine. The wound had not healed, and the thigh discharged in four places, but, with the assistance of a cane, he was able to walk comfortably.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 237. *Successful Excision of the Left Tibia.*

Lieutenant O. R. Tyler, Battery I, 2d Connecticut Heavy Artillery, was wounded at Opequan Creek, near Winchester, Virginia, on September 19, 1864, by a conoidal musket ball, which fractured and comminuted the left tibia in the middle third. On the same day he was sent to the depôt field hospital, where Surgeon Henry Plumb, 2d Connecticut Heavy Artillery, by a linear incision along the inner anterior aspect, excised three inches of the bone, which was much comminuted. The patient's general condition was satisfactory; simple dressings were applied. On November 12th he was transferred to the hospital at Frederick, Maryland, where, on December 15th, the missile and fragments of bone were removed. By January 14, 1865, when he was furloughed, there had been no bony deposit in the interspace. He was discharged from service March 9, 1865. In June, 1865, Dr. E. D. Hudson, who furnished the patient an apparatus for supporting the limb, reported that there was no shortening of the leg, but that it was considerably atrophied, with lateral excurvature; the head of the fibula was partially detached by relaxation of the ligaments, and the flexor muscles of the foot were impaired. A thin osseous tissue, not continuous or united, supplied the place of the missing bone, but afforded no support.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 238. *A Cranium, with the Atlas luxated to the Right and Firmly Ossified to the Occipital Condyles.*

The specimen is 5119 of the Surgical Section, and formerly was No. 115 of the Gibson Collection.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 239 *Shaft and Proximal Extremity of the Left Femur, showing Lateral Deformity, with Necrosis and Exfoliation, the Result of a Gunshot Wound.*

Private M. D. Powell, Co. H, 26th Alabama Regiment, aged twenty-two years, was wounded at Antietam, September 17, 1862, by a missile, which produced a compound comminuted fracture of the upper third of the left femur and lodged. He was admitted to the Hospital at Frederick, Maryland, January 2, 1863. No apparatus was applied; but the limb was placed in easy position under a pillow, the missile was extracted, and nitric acid was applied to the sloughing wound. On January 26th, the wound had an unhealthy appearance, at first supposed to be gangrenous. The patient had a troublesome cough, for which a stimulating cough-mixture and cups to chest were prescribed. His general condition improved until erysipelas set in, which was ineffectually treated by the expectant plan. He died March 16, 1863, from exhaustion. At the autopsy, the fracture was found united at an angle of forty-five degrees; the hip-joint contained pus, and the cartilage of the acetabulum was softened. There was bronchitis in the upper lobe of the right lung, and a calcareous deposit, of buckshot size, was found in the middle lobe. The heart and liver were fatty, and in the pelvis of the kidneys phosphatic deposits were found. The specimen, which is No. 3841, Surgical Section, was contributed by Assistant Surgeon R. F. Weir, U. S. A.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 240. *Dislocation of the Occipital Bone from the Atlas, with Osseous Anchylosis.*

This specimen, which is No. 5118 of the Surgical Section, is marked Paris, 1847, and, formerly, was No. 155 of the Gibson Collection. The atlas is dislocated laterally and to the right, the lateral masses and right laminae being strongly united to the occipital bone. The rudimentary spinous process is wanting, and the laminae do not unite.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 241. *Tubular Sequestra from Two Stumps of Femur after Amputation*

Private John Nash, Co. G, 143d Pennsylvania Volunteers, aged twenty-one years, was wounded in an engagement at North Anna River, Virginia, May 24, 1864, by a ball which fractured the right knee-joint. On the same day, he was admitted to the hospital of the Fourth Division, Fifth Corps; thence, was conveyed on a transport to Washington, and, admitted, on May 29th, to the Armory Square Hospital. While on the way, on the 28th, his thigh had been amputated at the lower third. By December 21st, he was pronounced convalescent, and was transferred to Judiciary Square Hospital. Suppuration indicating the presence of dead bone, Acting Assistant Surgeon F. H. Hill, on April 9, 1865, removed the sequestrum. The patient was discharged from service on June 22, 1865, and pensioned, his disability being rated total. The sequestrum was contributed to the Army Medical Museum by Surgeon E. Griswold, U. S. V., and is numbered 144 of the Surgical Section. It is about eight inches long and completely tubular, and is represented on the right of the photograph.

Private John Glassie, Co. B, 63d New York Volunteers, aged twenty-two years, was wounded at Cold Harbor, Virginia, June 3, 1864, by a canister-shot which fractured the left ankle-joint. On the same day, he was admitted to the hospital of the First Division, Second Corps, where Surgeon P. E. Hubon, 28th Massachusetts Volunteers, amputated the lower third of the leg. On the 11th, he arrived at Washington, and was admitted to the Emory Hospital, where, on the 25th, Surgeon N. R. Mosely, U. S. V., amputated the lower third of the thigh by the bi-lateral flap operation. Extensive sloughing ensued, the femur became diseased, and gangrene supervened. An abscess that had formed, was opened on October 12th, and poultices were applied. On November 1st, the stump was much swollen, and was still discharging; and on March 11, 1865, when he was transferred and admitted to Central Park Hospital, New York City, the end of stump was reported red and inflamed, with three sinuses leading to necrosed bone. On March 19th, Acting Assistant Surgeon S. Teats made an incision on face of stump and removed the sequestrum. The patient was discharged from service on August 15, 1865, and pensioned, his disability being rated total. The sequestrum was contributed to the Army Medical Museum by the operator, and is No. 3100 of the Surgical Section. It is eight inches long, is tubular, and is represented on the left of the photograph.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No 242. *Upper Portion of the Right Femur showing its Condition Eleven Months after Fracture by a Conoidal Musket Ball.*

Lieutenant George A. Connor, Co. A, 7th West Virginia Volunteers, aged twenty-four years, was wounded at Ream's Station, August 25, 1864, by a conoidal musket ball, which fractured the femur at the junction of the middle with the upper third, and caused considerable hæmorrhage. His limb was placed on a lateral splint whilst on the field. On August 28th, he was admitted to the Armory Square Hospital at Washington in a very feeble condition and suffering intense pain. Stimulants and anodynes were freely administered, and the limb was placed in a fracture-box without extension. On November 5th, the patient had intermittent fever, which, continuing five days, was checked by quinine. On April 1st, the femur had united, but sinuses extended to the necrosed bone which the patient at first refused to have removed; however, becoming much emaciated and daily losing strength, he consented to the operation, and, on June 24th, Surgeon D. W. Bliss, U. S. V., removed portions of necrosed bone and fragments of lead. He suffered greatly from the effects of the operation for three days subsequently, when healthy granulations appeared. In the meantime, he was treated expectantly. On July 10th, an uncontrollable diarrhœa set in, and he died from exhaustion on July 31, 1865. The pathological specimen, showing a certain degree of union by foliaceous callus, was contributed, with the history, to the Army Medical Museum by Acting Assistant Surgeon C. B. Porter, and is No. 4382, Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 243. *Sequestra removed from Femurs after Amputation.*

Private William B. Biddle, Co. K, 138th Pennsylvania Volunteers, aged twenty-seven years, was wounded at Cedar Creek, Virginia, October 19, 1864, by a conoidal musket ball, which struck the external condyle of the left femur and penetrated the knee joint. On the same day, he was admitted to field hospital; his wound was dressed; and, on the 24th, he was transferred to Baltimore, and admitted to the Jarvis Hospital, where Acting Assistant Surgeon B. B. Miles administered ether, and amputated the thigh, at the lower third, by the circular operation. On February 22, 1865, a sequestrum, about four inches long, was removed, and was contributed, by the operator, to the Army Medical Museum, where it is No. 109 of the Surgical Section. The patient was furloughed on March 20th, and, on April 25th, was admitted to the South Street Hospital at Philadelphia. On May 9th, he was sent to the Hospital at Chester, Pennsylvania, where, on July 18, 1865, he was discharged the service and pensioned, his disability being rated at three-fourths.

Private James M. Runyan, Co. H, 59th New York Volunteers, aged sixteen years, was wounded at Antietam, September 17, 1862, by a projectile which struck the right thigh. He was conveyed to the field hospital at the Sherman House, where the wound was considered so serious that the thigh was amputated in the middle third by the circular method. No further details of the case can be found until October 17th, when he was admitted to the hospital at Smoketown, Maryland, suffering from diarrhoea, and the stump, with about two inches of the bone protruding, and covered with maggots, was secreting an ichorous pus, and showing some gangrenous spots. The protruding bone was removed with a chain saw; the diarrhoea was checked in a few days, by the use of injections, and a nourishing diet; the stump was covered with a cold poultice of yeast and charcoal, and as soon as it presented the desired healthy appearance, a dry linen compress was applied. By January 20, 1863, the stump had healed with a slight protrusion of the femur. Attempts were made to remove the sequestrum without instrumental interference, but it was not till March 14th, that the result was successful. The specimen is about five inches long, and was contributed to the Army Medical Museum by the operator, Surgeon B. A. Vanderkief, where it is No. 1041 of the Surgical Section. The patient recovered, was discharged from service on May 4, 1863, and was pensioned, his disability being rated total and permanent.

Private Peter Walker, Co. C, 37th Wisconsin Volunteers, aged thirty-eight years, was wounded at Cold Harbor, Virginia, June 18, 1864, by a ball which severely wounded the right knee joint; he also received a gun-shot flesh wound of the left thigh. He was admitted to the hospital of the Third Division, Ninth Corps. The injured knee being lacerated and much swollen, Surgeon S. S. French, 20th Michigan Volunteers, amputated the right thigh, at the junction of the lower thirds, by the circular method. He was sent to Washington, and was admitted to the Emory Hospital on June 24, 1864, where a tubular sequestrum of bone, four inches long was extracted from the stump; but the patient died on August 22, 1864. The sequestrum was contributed to the Army Medical Museum by Surgeon N. R. Mosely, U. S. V., and is numbered 3128 of the Surgical Section.

Private John Frederick, Co. D, 15th Massachusetts Volunteers, aged thirty-five years, was wounded at Bristow Station, Virginia, October 14, 1863, by a fragment of shell, which entered the middle third of the left thigh posteriorly, and, passing directly forwards, produced a comminuted fracture of the femur, with great destruction of the muscular tissue. He lay neglected on the field until the afternoon of the next day, when he was conveyed, a prisoner, to Gordonsville, where the thigh was amputated, by the circular method, at the junction of the upper thirds. On November 8th, he arrived at Annapolis, from Richmond, and was admitted to the First Division Hospital. The patient gave evidence of having endured considerable exposure and neglect, and made the above statement. He complained of diarrhoea and loss of appetite; the wound was open, the skin retracted, and the sawn extremity of the femur protruded an inch and a half; but it was thought advisable to pursue the expectant plan, and, accordingly, the stump was dressed with alcohol, and generous diet was ordered. By December 1st, the diarrhoea was no longer troublesome, his appetite was good, and the stump was granulating finely, and slowly extending towards extremity of bone, one inch, only, remaining exposed. On January 20, 1864, a sequestrum was first detected, but not being sufficiently loose, it was allowed to remain for the present. The thigh gradually enlarged four inches in circumference, and, on the 1st of April, the patient suffering severely from the presence of necrosed bone, he was chloroformed, and Surgeon B. A. Vanderkief, U. S. V., seized the extremity with large forceps, and, by a combined motion of traction and rotation, removed the separated portion, entire. The operation was perfectly successful; and, on May 24, 1864, the patient was discharged the service, and was pensioned for disability, rated at total. The specimen, which is tubular, and nearly five inches long, was contributed, with the history, by Assistant Surgeon W. S. Ely, U. S. V., and is numbered 2232 of the Surgical Section.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Asst Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 244. *Necrosis and Exfoliation and Deposits of Spongy Callus after a Gunshot Fracture of the Left Femur.*

Private John E. Keith, Co. C. 13th Massachusetts Volunteers, aged twenty years, received a gunshot fracture of the lower third of the left femur, at the second battle of Bull Run, August 30, 1862. He lay on the field until September 2d, when he was removed to Washington in a wagon so heavily laden with wounded that the springs were no protection from the jolting of the wagon over the rough roads. The fracture being comminuted and very oblique, the patient suffered intensely during the journey, and when he was admitted to the Ascension Hospital, the lower fragment of the femur was protruding through the external wound to the extent of an inch. After restoratives had been given him, he was etherized and the fracture was coaptated without much difficulty. The limb was then suspended by Smith's anterior splint, and cold water was applied, and tonics with a nutritious regimen were prescribed. At the beginning of the third week abscesses began to accumulate in the inner and posterior lower portion of the thigh, and bursting through the skin in numerous places discharged profusely. The openings were so numerous that the rollers used to confine the splint could not be applied without covering some of them, which necessitated their daily removal, and as the patient could not endure the slightest handling of the limb he was partially etherized every day while the warm weather continued and afterwards every other day, in order to apply clean rollers around the splint and renew the dressings. Liquor sodæ chlorinatæ, diluted with four parts of water was freely used at each dressing, being injected through the openings by a syringe. To add to the discomfort of the patient, about the end of the fifth week gangrene of the integuments of the sacro-lumbar region and the iliac projections set in, and the patient was transferred to a water bed, but now it was found impossible to keep the limb from rolling and causing great agony. The anterior splint was removed, and one similar to Desault's substituted, with a short anterior one, it being impossible to apply them either laterally or posteriorly on account of the number of openings. The fragments remained in apposition rather better by this apparatus; but it was so uncomfortable that it was removed in a few days and there being no hope of union, short splints covered with oiled silk were placed around the thigh, and the leg swung in a fracture box, this being the most comfortable support that could be devised. He died on October 24 1862. The limb was examined six hours after death. The soft parts from the knee to the groin were utterly disorganized. The femur was removed and sent to the Army Medical Museum. The broken extremities were covered with spongy callus; but a cylindrical sequestrum interposed between the fragments, and there was no union.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 245. *Upper Portion of the Right Femur fractured by a Conoidal Musket Ball just below the Trochanters, with Profuse Deposit of Callus without Union.*

Private S. Manley, Co. A, 63d New York Volunteers, aged twenty-six years, was wounded at the battle of Gettysburg, July 2, 1863, by a conoidal musket ball, which fractured the upper third of the right femur. He was sent to Camp Letterman Hospital at Gettysburg on August 4th, where the limb was treated by the double inclined plane and simple dressings. Partial union had taken place. On September 3d there was a profuse discharge from the wound, and the patient was rapidly sinking. There was, also, great shortening of the limb. He died October 8, 1863. The history reports "a complete false joint, the head and socket being covered with a dense, smooth, and apparently fibrous membrane;" but this is not seen in the pathological specimen, which is No. 1935 of the Surgical Section, and was contributed by Acting Assistant Surgeon E. P. Townsend.

Photographed at the Army Medical Museum.

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Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 246. *Gunshot Fracture of Upper Third of Left Femur, treated by Smith's Anterior Splint with Partial Recovery.*

Private Josiah Jones, Co. D, 12th New Hampshire Volunteers, aged twenty-four years, was wounded at Chancellorsville on May 3, 1863, by a missile which fractured the left femur in the upper third. On May 15th he was admitted to the hospital of Whipple's Division, Third Corps; and on June 14th he was sent to the Second Division Hospital at Alexandria, where, on November 20, 1863, he was discharged on surgeon's certificate of disability; afterwards, he was pensioned. A communication from Surgeon Isaac F. Galloupe, U. S. V., dated September 22, 1869, states, that the patient received no appropriate treatment until he arrived at Alexandria, where Smith's Anterior Splint was applied, and the limb kept suspended nearly four months. The upper posterior cicatrix, as shown in the photograph, represents the wound of entrance; the one below it, the location of the last fistulous opening which closed in November, 1868, after discharging, from time to time, fragments of necrosed bone. The outer scar, in front, indicates the wound of exit; the remaining two, the result of abscesses.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 247. *Successful Secondary Amputation at the Hip-Joint, following an Excision of the Head of the Femur for Gunshot Injury.*

Private John Schranz, 7th Austrian Feldjäger, was wounded at the battle of Palestro, May 30, 1859, by a ball which fractured the trochanter of the left femur, the splintering involving the joint, either directly or by exciting traumatic arthritis. The formation of abscesses in the thigh rendered some operative interference necessary, and on November 27, 1859, Dr. Neudörfer, chief surgeon of the Eighth Austrian Army Corps, excised the head, neck, and trochanters of the bone. The operation did not result favorably, and four days subsequently Dr. Neudörfer removed the entire limb by the double flap method. A rapid recovery followed, and on January 1, 1860, the patient was walking about. A photograph, presented to Dr. Otis by Dr. Neudörfer, which now hangs in the Army Medical Museum, was taken April 12, 1868, represents the patient in excellent condition more than eight years after the operation. This photograph is a copy from that referred to. A detailed account of this case will be found in Dr. Neudörfer's *Handbuch der Kriegschirurgie*. Leipzig, 1864.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPHS No. 248, 260, AND 261. *Successful Secondary Excision of the Head of the Femur for Gunshot Injury.*

These three photographs illustrate the case of Private C. F. Read, Co. I, 37th Infantry, who received a gunshot fracture of the head of the left femur, while on picket, sixty miles from Fort Stanton, New Mexico, June 8, 1868. The nature of the injury to the bone will be understood from the adjacent wood cut, copied from the specimen contributed to the Museum by the operator, Assistant Surgeon J. R. Gibson, U. S. Army, and numbered 5576, Section 1, A. M. M. The case is very fully detailed in the Report in Circular No. 2, S. G. O., 1869, page 117. The operation was performed on August 14, 1868, through a T shaped incision. By November 20, the patient was able to walk about the hospital building, and the further progress of the case was as rapid as it was favorable. Early in 1869, this soldier was discharged from the service. He came across the plains by the next train, and in September, 1869, reported at the Surgeon General's Office, where the photograph, No. 248, was taken. At that time the patient's general health was excellent. The cicatrix was perfectly firm and sound, and the strength of the ligamentous attachments and the amount of control over the movements of the limb were very remarkable. He could bear much weight on the limb. Assistant Surgeon Otis, U. S. Army, who was instructed to recommend a suitable apparatus, suggested one; but advised that he should not use it at present, but should continue to exercise the limb cautiously for some months, to increase by exercise the strength of the muscles and ligamentous attachments, and the freedom of the newly formed joint. The next week Read went to New York, and the apparatus proposed, and figured in photograph 261, was ingeniously adapted by Dr. E. D. Hudson. In the summer of 1870, it was reported that this man could walk very comfortably with a cane, either with or without his apparatus.



Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 249.

The figure on the left of the group represents a section of the left radius and ulna, showing a fracture of each, for which amputation was performed. The ulna is transversely fractured, with necrosis of the borders; the radius is broken into four pieces. The patient was B. F. Surby, a civilian attaché of the army, who was wounded at Fredericksburg, on December 14, 1862, by a projectile which produced the above described injury. He was sent to the Douglas Hospital at Washington on the 26th, where, on December 29th, the forearm was amputated, just below the elbow, by Surgeon Peter Pineo, U. S. V. The patient recovered; and on September 29, 1865, he visited the Army Medical Museum, when the stump, which was in excellent condition, was photographed. The specimen is No. 711 of the Surgical Section, and was contributed by the operator.

The figure on the right represents the upper portion of the right radius and ulna fractured in their upper thirds. A ball has apparently passed between the two, fracturing the radius in an irregularly transverse manner, and chipped off two inches from the posterior surface of the ulna. A longitudinal fissure extends one and a half inches on the posterior surface of the radius, and the borders of the fracture are necrosed. The patient was Thomas A. Martin, a private of Co. G, 91st New York Volunteers, aged twenty-two years, who was wounded at the South Side Railroad on March 30, 1865. He was sent to Philadelphia, and was admitted to the Mower Hospital on April 7, 1865. After his admission several slight hæmorrhages took place, and, on the evening of April 16th, a profuse one occurred from the ulnar artery, high up, which necessitated ligation of the brachial artery in its lowest third. On the 18th, the hæmorrhage recurring, led to the conclusion that the artery had bifurcated above the point of the ligature; and, as the prospect of checking the hæmorrhage was unfavorable, and the injury to the bones and soft parts extensive, amputation at the middle third of humerus, by the circular method, was decided on, and was, accordingly, immediately performed. The patient reacted well. The case progressed favorably, and, by June 6th, the stump had nearly healed, it being kept open only by a slight exfoliation from the end of the bone. A dissection of the amputated arm confirmed the opinion held in reference to the artery: two large trunks had formed, showing bifurcation above the point of ligation. On August 17, 1865, the patient was sent to the head-quarters of his regiment to be mustered out. The specimen is No. 1588 of the Surgical Section, and was contributed, with the history, by Acting Assistant Surgeon W. S. Hendrie.

The central figure represents the lower two-thirds of the left radius and ulna, apparently amputated. About two inches of the ulna in the lowest third is wanting; and the radius, directly opposite, is transversely fractured without displacement, (probably by the same missile nearly spent,) with slight fissuring, extending, posteriorly, to the styloid process. The specimen is No. 2571 of the Surgical Section; the contributor and history are unknown.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 250. *Specimens exhibiting Comminuted Fractures of the Right and Left Forearm*

The Left shows a transverse fracture of the radius in the middle third, without displacement. The ulna is fractured, with the loss of one inch in the middle third. This specimen, in which no pathological changes are noticeable, was contributed by Surgeon J. E. Summers, U. S. A., and is No 320 of the Surgical Section.

The Right shows a transverse fracture of the radius in the lower third, with both fragments longitudinally fissured. The ulna has two transverse fractures; one in the middle third, and one just above the lower extremity. These bones are the result of an unsuccessful amputation, performed on Private A. P. Bush, Troop F, 1st Massachusetts Cavalry, aged twenty-nine years, who was wounded at Bristow Station, Virginia, in October, 1863, by a solid shot, which caused the above mentioned injury. On October 15th, he was admitted to the First Division Hospital at Alexandria, in a feeble and exhausted condition. The limb was extensively swollen, and the patient suffered intense pain. Three days subsequently, the arm was amputated in the middle third by the circular operation. On the 23d, he seemed to improve; but, on the 25th, the flaps sloughed apart. On the 29th, the stump was granulating finely, and he continued to improve. On November 1st, the patient had a violent chill, which, lasting twenty minutes, was followed by a fever of two hours duration. The chills recurred on the 6th, 7th and 8th, and, by the 19th, he was in a very low condition. On the 20th, he was much improved, and the wound looked finely; but he did not seem to rally sufficiently to warrant hopes of his recovery. Pyæmia supervened, and death occurred on November 21, 1863. The autopsy revealed an abscess at the shoulder joint, filled with six ounces of pus. The abdominal viscera were normal, with the exception of the stomach, which was highly congested. This specimen, exhibiting no noticeable pathological changes, was contributed by Surgeon E. Bentley, U. S. V., and is No. 1841 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 251.

The figure on the right of the group represents the bones of the right leg,—the tibia extensively comminuted in the upper third, and the fibula transversely fractured—with a portion of a conoidal musket ball attached. The patient was G. F. Skinner, a private of Co. H, 6th Maine Volunteers, aged thirty years, who was wounded at Chancellorsville, on May 3, 1863, by a conoidal musket ball which entered the leg on the inner aspect, a half inch from the spine of the tibia, and produced the above mentioned injury. A portion of the ball escaped at the back of the leg. He was sent to Washington, and was admitted to the Douglas Hospital on May 5th. On admission, there was much contusion some ecchymosis, and, but for the high state of inflammation which co-existed, amputation would have been performed. Water dressings were applied to the wound, and the leg was placed in a fracture box filled with bran, and expectant treatment was used. No change was perceptible until the morning of May 16th, when a state of advanced gangrene had supervened, which was rapidly extending up the thigh. The soft tissues became "boggy and crepitant." The patient was bathed in a clammy sweat, and his pulse was 160 and very weak; notwithstanding which, he manifested no alarm or depression of spirits. The previous evening he had seemed as well as usual; and a careful examination of the limb had failed to reveal any indication of the presence of gangrene. Amputation was deferred in the hope of reaction under strong stimulation, but, he gradually sank, and died, about 2 o'clock, on the morning of the 17th. At the autopsy, sixteen hours after death, it was found that the internal organs, generally, were normal; but, at the seat of injury, in addition to the excessive comminution of bone, a portion of the ball was found lying upon the posterior tibial vessels, which were compressed and lacerated. No secondary abscesses were formed, and it was concluded that death had occurred from gangrene in its primary stage. The notes in this case were furnished by Assistant Surgeon C. C. Lee, U. S. A.; the specimen was contributed by Assistant Surgeon W. Thomson, U. S. A., and is No. 1249 of the Surgical Section.

The central figure represents the right tibia and fibula transversely fractured, with some comminution, in the middle third, by a horse falling upon the subject. There is no attempt at union. The patient was Harvey M. Lambert, a sergeant of Troop D, 12th Illinois Cavalry, aged twenty-nine years, who received the above injury at Stevensburg, Virginia, on October 10, 1863, and was conveyed to Washington on the same day, and was admitted to the Emory Hospital. The patient was of good constitution, but, becoming weak and debilitated, tonics and stimulants were given with the desired result. On the 25th, there being a copious discharge of sanious pus from the wound, and the swelling having extended to the knee, Acting Assistant Surgeon W. H. Ensign amputated the leg, at the upper third, by the double flap operation. The stump had almost healed, when, on November 8th, a hæmorrhage supervened which graduated compresses were unable to control. On the 10th, the patient having become very weak, re-amputation at the lowest third of the thigh, by the same method, was performed. The stump, again, had nearly healed, when, on November 26th, the hæmorrhage recurred, but was controlled by Dr. Mott's tourniquet. By January 18, 1864, the patient had recovered his strength, and the wound had healed. On May 16, 1864, he was transferred to Judiciary Square Hospital where he was discharged the service on July 30, 1864. The specimen is No. 1744 of the Surgical Section, and was contributed by the operator.

The figure on the left shows the left tibia and fibula amputated in the middle third. The fibula, just above the malleolus, and the tibia, two inches above the joint, are transversely fractured by a conoidal musket ball which is attached. There is no history, but the absence of comminution in a fracture by such a missile, is noteworthy. The specimen is No. 490 of the Surgical Section, and was contributed by Assistant Surgeon George M. McGill, U. S. A., from the field Hospital of the Ninth Corps at Falmouth, Virginia.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 252.

The figure on the left of the group represents the lowest third of the right femur nearly transversely fractured, with a slight fissure extending upward on the anterior surface, and a large one downward on the posterior surface. The specimen, which was received from the field without history, is No. 4030 of the Surgical Section, and was contributed by Assistant Surgeon S. Adams, U. S. A.

The left central figure shows the right humerus transversely fractured by gunshot in the middle third, and slightly chipped at the point of impact on the anterior surface, with two extensive longitudinal fissures up the shaft and one spiral, extending downwards three inches. The specimen was contributed, in 1862, from Fredericksburg, without history, by Dr. S. Perry, and is No. 682 of the Surgical Section.

The right central figure represents eight and a half inches of the shaft of the left femur, exhibiting a longitudinal fracture with extensive fissuring and comminution. The specimen, No. 2644 of the Surgical Section, was received, without history, after the battle of the Wilderness, and is said to have been excised at Fredericksburg.

The right figure represents a portion of the shaft of the left femur transversely fractured, with comminution, and extensively fissured, obliquely. The patient was Nathan* Fisk, a private of Co. F, 89th New York Volunteers, aged twenty-two years, who was wounded at Suffolk, Virginia, April 19, 1863, by a grape shot, which struck the left thigh three inches and a half above the knee, a little to the outer side of the median line, and, passing upwards, backwards and inwards, produced the above described injury to bone, and emerged on the intero-posterior aspect, about four inches from the anus, and about nine inches from the wound of entrance. The wound of entrance was circular and an inch and a half in diameter; that of exit was smaller and not so perfectly circular. He was admitted to the general hospital in the Methodist Church at Suffolk. On the next day, he reacted promptly, and, whilst under the influence of chloroform, the wound was examined, and amputation decided on; but, upon advice, it was abandoned, and was substituted by conservative treatment, which, however, was unsuccessful, the case proving fatal at noon of the 22d. At the autopsy, it was found that the muscles were much injured, but that there was no wound of the blood vessels or nerve. The bone, on the inner face, was denuded of periosteum nearly two inches; but this was thought to be the result of causes subsequent to the injury. The specimen is No. 1056 of the Surgical Section, and was contributed, with the history, by Surgeon T. H. Squire, 89th New York Volunteers.

*This soldier was borne on the rolls as "Charles" Fisk: his brother Charles had enlisted, but, having a family, and Nathan none, the latter assumed his name and place in the ranks.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 253. *A Group of Specimens of United Simple Fracture of the Patella.*

The seven specimens of simple fracture of the patella united by ligamentous or osseous union, represented in this photograph, comprise all in the possession of the Army Medical Museum in July, 1870. The examples of compound, and especially of gunshot fractures, are of course much more numerous. The three specimens in the lower row are illustrations of firm bony union. In 5413 the fracture was transverse; in 5414 vertical; and in 5415 stellate. The specimens in the upper row illustrate union of fractured patella by ligaments. In 5355 and 5364 the fragments are so nearly approximated that the motions of the limbs were probably not much impaired. In 5353 separation is considerable, and in 5354 the separation was so great that, without the use of some apparatus, the functions of the *quadriceps femoris* must have been abolished almost. Nearly all of these specimens were purchased from the cabinet of the late Professor William Gibson, and the clinical histories of the cases are wanting.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 254. *Transverse Fractures of the Humerus at the Junction of the Lower Thirds.*

The figure on the left represents the lower half of the right humerus, amputated four weeks after injury. The patient was Job Strange, a private of Co. H, 62d New York Volunteers, aged sixty years, who was wounded at the Wilderness on May 5, 1864, by a conoidal musket ball, which, passing directly through the arm, fractured and slightly comminuted the humerus at the junction of the lower thirds. He was admitted to the hospital of the Second Division, Sixth Corps, on the same day, where a simple dressing was used. On the 25th, he was admitted to the Lincoln Hospital at Washington, in a very irritable condition, the arm being much swollen and inflamed, owing to the absence of proper support from splints or bandages. By June 3d. the patient's health had so much improved, that he was taken to the operating room, where the wound was explored whilst under the influence of ether; the upper fragment of bone being denuded of its periosteum to the extent of two inches, it was decided to amputate by the circular operation, the first incision being made about one inch above the course of the missile. But little blood was lost, the subclavian artery being thoroughly compressed and six ligatures used. The patient died from exhaustion on June 10, 1864. The pathological specimen was contributed by the operator, Acting Assistant Surgeon H. M. Dean, and is No. 2426 of the Surgical Section.

The figure on the right represents a part of the left humerus transversely fractured at the junction of the lower thirds, the edges in close apposition. Private Horatio Bacon, Co. A, 77th Illinois Volunteers, aged twenty-one years, was accidentally run over by a horse car, in New Orleans, Louisiana, December 25, 1863. He was admitted to the University Hospital, where an examination revealed a compound fracture of the left humerus with extensive laceration of soft parts. No external marks indicated other injuries; but he died from the shock in two hours and a half, and the autopsy revealed laceration of the stomach, duodenum, spleen, liver and left kidney. The specimen, with the history, was contributed by Assistant Surgeon P. S. Connor, U. S. A., and is No. 2993 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 255. *Exhibiting Transverse Fractures of the Leg Bones from Gunshot.*

The figure on the left of the group represents the left tibia, twenty-four days after injury. The bone transversely fractured in the middle third, shows no signs of union or deposit of callus. The patient was Alexander Vancian, a private of Battery I, 1st Maine Heavy Artillery who was wounded at Petersburg on June 18, 1864, by a conoidal musket ball, which, entering the middle third of the leg anteriorly, fractured the tibia, and, passing downwards, lodged on the tarsal cartilage. When admitted to the Third Division Hospital at Alexandria (June 29th), there were several incisions in the leg, and the patient stated that the ball had been removed. The wound looked healthy, but discharged freely, and there seemed to be several sinuses parallel with the bone. Water dressings were applied and stimulants administered. After failing rapidly, death occurred July 12, 1864. At the autopsy, it was found that the bullet had raked the whole length of the tibia, and had lodged in the joint on the upper surface of the tarsal bones. Profuse suppuration had extended along its whole course. The several openings had, probably, been made in vain attempts to find the ball; some, however, were caused by ulceration. The anterior surface of the tibia was necrosed nearly its whole length. There was great emaciation. The specimen is No. 3344 of the Surgical Section, and was contributed by Surgeon E. Bentley, U. S. V.

The figure on the right represents the right tibia and fibula transversely fractured in the upper third, and the fibula again fractured in the middle third. The want of comminution is marked and remarkable. The lowest third of the tibia is missing. The patient was private Josiah Johnson, Co. B, 27th Connecticut Volunteers, aged twenty-two years, who was wounded at Fredericksburg on December 13, 1862, by an unknown missile, which produced compound fracture of the right leg. He was sent to the hospital of the Ninth Corps, whence he was transferred, on December 17th, to the Harewood Hospital at Washington, where, on the 23d, the thigh was amputated at the junction of the lower thirds. The patient was anæmic, and, on December 31st, secondary hæmorrhage occurred from the femoral artery, which was ligated at Scarpa's triangle. He died January 5, 1863, from exhaustion. The pathological specimen was contributed by Acting Assistant Surgeon W. A. Harvey, and is No. 982 of the Surgical Section.

The middle figure represents the left tibia transversely fractured in the middle third. There is some comminution, and a longitudinal fissure is seen in the upper fragment. The specimen is No. 480 of the Surgical Section, and was contributed by Surgeon W. H. Leonard, U. S. V.

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PHOTOGRAPH No. 256.

These specimens, respectively numbered 5234 and 5236 of the Surgical Section, are from the Gibson Cabinet, and nothing is known of their history. The former is a left humerus, showing united simple fracture; the latter, a right humerus, showing a united simple fracture of the shaft, with overlapping.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH NO. 257. *Illustrations of Gunshot Fractures of the Humerus.*

The figure on the right of this group represents three inches excised from the lower portion of the right humerus. The patient was Major Benjamin C. Stanhope, of the 6th Ohio Cavalry, who was wounded at Aldie Gap, Virginia, on June 17, 1863, by a carbine ball, which entered the right arm, and, transversely fracturing the humerus, passed downwards, opened the joint, and escaped at the anterior inferior third of the forearm. On the same day, he was sent to the hospital of the Second Division, Cavalry Corps, where, six hours after the injury, excision of the elbow joint was performed by Assistant Surgeon G. M. McGill, U. S. A. On the next day, he arrived at Alexandria and was admitted to the Second Division Hospital. The patient was a young man, of short stature, and very adipose. He died of tetanus on June 25, 1863. The pathological specimen is No. 1282 of the Surgical Section, and was contributed, with the history, by the operator.

The middle figure represents the lower half of the right humerus transversely fractured in the lowest third by gunshot. The specimen, which shows a fissure about two inches long on the posterior surface of its upper extremity, is No. 2446 of the Surgical Section, and was received after the battle of Chancellorsville.

The remaining figure exhibits the lower half of the right humerus transversely fractured near the junction of the lower thirds, by a conoidal ball, which is attached. It is No. 250 of the Surgical Section, and was contributed by Surgeon J. H. Brinton, U. S. V.

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PHOTOGRAPH No. 258. *Illustrations of Gunshot Fractures of Long Bones.*

Specimen 146 is a portion of the right humerus at the junction of the upper thirds, showing a transverse fracture by an unknown missile, and is the result of an excision performed upon Heinrich Geyer, a private of Co. A, 68th New York Volunteers, aged twenty-three years, who was supposed to have been wounded at the Second Bull Run about August 30, 1862. On September 1st, he was admitted to the Carver Hospital at Washington, where the limb was treated with the ordinary fracture apparatus without success until September 18th, when the middle third of the shaft, to the extent of nearly two inches, was excised by Acting Assistant Surgeon J. O. French. Chronic diarrhœa is reported to have been the immediate cause of death, which occurred on October 18, 1862. The specimen was contributed by Surgeon O. A. Judson, U. S. V.

The remaining three specimens exhibit fractures of the femur from gunshot.

The middle one of the three shows the middle third of the femur transversely fractured, with moderate comminution, and longitudinal fissuring. This specimen was received after the battle of Gettysburg, and is No. 1367 of the Surgical Section.

The one on the left represents the middle third of the femur nearly transversely fractured. There are several slight fissures, with no comminution. The inferior portion shows a fissure, not communicating with the fracture. The fragments are in very close apposition. This specimen is No. 673 of the Surgical Section, and was contributed by Surgeon W. H. Leonard, ~~U. S. V.~~

For a description of the remaining specimen, see photograph 225.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 259. *Three Specimens exhibiting Gunshot Fracture of the Femur.*

The first, showing the lower half of the left femur, transversely fractured in the middle third, without fissuring or comminution, is No. 249 of the Surgical Section, and was contributed by Surgeon J. H. Brinton, U. S. V. The second shows the greater portion of the right femur comminuted and longitudinally fissured, by gunshot, at the upper part of the lowest third. It is, evidently, from a young subject, and is remarkably slender. It was contributed by Surgeon G. W. McMillin, 5th East Tennessee Volunteers, and is No. 2161 of the Surgical Section. The third is the shaft of a femur fractured transversely. It is considerably necrosed, and most of the shaft shows superficial exfoliation.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS No. 248, 260, AND 261. *Successful Secondary Excision of the Head of the Femur for Gunshot Injury.*

These three photographs illustrate the case of Private C. F. Read, Co. I, 37th Infantry, who received a gunshot fracture of the head of the left femur, while on picket, sixty miles from Fort Stanton, New Mexico, June 8, 1868. The nature of the injury to the bone will be understood from the adjacent wood cut, copied from the specimen contributed to the Museum by the operator, Assistant Surgeon J. R. Gibson, U. S. Army, and numbered 5576, Section 1, A. M. M. The case is very fully detailed in the Report in Circular No. 2, S. G. O., 1869, page 117. The operation was performed on August 14, 1868, through a T shaped incision. By November 20, the patient was able to walk about the hospital building, and the further progress of the case was as rapid as it was favorable. Early in 1869, this soldier was discharged from the service. He came across the plains by the next train, and in September, 1869, reported at the Surgeon General's Office, where the photograph, No. 248, was taken. At that time the patient's general health was excellent. The cicatrix was perfectly firm and sound, and the strength of the ligamentous attachments and the amount of control over the movements of the limb were very remarkable. He could bear much weight on the limb. Assistant Surgeon Otis, U. S. Army, who was instructed to recommend a suitable apparatus, suggested one; but advised that he should not use it at present, but should continue to exercise the limb cautiously for some months, to increase by exercise the strength of the muscles and ligamentous attachments, and the freedom of the newly formed joint. The next week Read went to New York, and the apparatus proposed, and figured in photograph 261, was ingeniously adapted by Dr. E. D. Hudson. In the summer of 1870, it was reported that this man could walk very comfortably with a cane, either with or without his apparatus.



Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

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PHOTOGRAPH No. 262. *Double Amputation of the Arms at the Upper Thirds.*

Private A. Stratton, Co. G. 147th New York, had both arms carried away by a solid cannon shot from the defences in front of Petersburg on June 18, 1864. The projectile struck both limbs about the elbow, tearing off the forearms, and greatly lacerating the soft parts above the elbow. Cordials were given, and immediate amputation of both arms was performed by Surgeon A. S. Coe, 147th New York Volunteers. The patient was then transferred to City Point. On June 28, he was sent to the Second Division Alexandria Hospital, both wounds progressing very favorably. The stumps rapidly cicatrized, and on October 3, 1864, he was discharged from the service, and pensioned at twenty-five dollars per month, and supplied with artificial arms of Grinnell's make. He called at the Army Medical Museum, in good health, on December 24, 1869, to have his photograph taken.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 263. *Excision of Right Elbow-Joint for Gun-shot Injury.*

Private Frederick Pilgrim, Co. D, 8th New York Cavalry, aged twenty-two years, was wounded at an engagement at Dinwiddie Court House, Virginia, April 1, 1865, by a ball which fractured the bones of the right elbow, leaving the main vessels and nerves intact. He was sent to City Point, and thence to Washington on the hospital transport Metropolitan, and was admitted to Harewood Hospital. He did well up to May 1, 1865, when the whole arm became erysipelatous and highly inflamed. Under the use of the tincture of the sesqui-chloride of iron internally, and cold lotions externally, the inflammation entirely disappeared in a few days, and on May 5th, Surgeon R. B. Bontecou, U. S. Vols., excised the articular extremities of the humerus, radius, and ulna, through an H-shaped incision. The wound sloughed badly; but by vigorous supporting treatment and the opportune employment of escharotics the gangrene was arrested. On July 15th cicatrization had far advanced, the patient was able to flex and rotate the forearm and appeared in a fair way of recovery. On July 31st he was transferred to Douglas Hospital, and on September 25th, to Ira Harris Hospital, at Albany. On November 6, 1865, he was discharged from service with his wound entirely healed and the elbow anchylosed. His disability was reported as total by Assistant Surgeon J. H. Armsby, U. S. Vols. In October, 1866, Pension Examining Surgeon John Root reported that the right upper extremity was practically useless, the motions of the hand even being much impaired, the arm and forearm atrophied. Pilgrim was pensioned at fifteen dollars a month and at last accounts was doing well, at his home in Dodge County, Nebraska.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 264. *Excision of the Right Elbow for Gun-shot Injury, followed by Anchylosis.*

Private Daniel Miller, Co. A. 1st Maryland Volunteers, aged eighteen years, was wounded at the battle of Hatcher's Run, Virginia, February 6, 1865, by a ball which penetrated the right elbow joint. He was sent by way of City Point to Point Lookout Hospital. On February 15, 1865, Assistant Surgeon John Vansant, U. S. Army, excised the articular extremities of the radius and ulna. After the operation, the forearm was semi-flexed, and supported by an angular splint. On July 24, 1865, the patient was transferred to Lincoln Hospital at Washington, and thence transferred to Armory Square on August 5. and thence to Harwood on August 15. On October 11, he was discharged from service by Surgeon R. B. Bonteeou, U. S. V. He was pensioned at fifteen dollars per month. On November 2, 1868, Pension Examiner J. A. B. Muse reported that the elbow was completely ankylosed, and the functions of the arm and forearm were almost destroyed, and rated his disability as total, third grade.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 265. *United Gunshot Fracture of the Upper Third of the Right Femur.*

Captain J. Stuart Lowery, 146th New York Volunteers, aged twenty-one years, was wounded by a conoidal rifle ball while on picket near Bethesda Church, Virginia, June 3, 1864. A conoidal musket ball entered at the middle of the right thigh towards its inner aspect, and was cut out on the field by Assistant Surgeon Fossard, 146th New York Volunteers, above the right trochanter. The femur was fractured in its upper third. Captain Lowery was brought six miles on a stretcher to the Field Hospital of the Second Division, Fifth Army Corps, where Surgeon T. M. Flandrau, 146th New York Volunteers, determined not to amputate, and supporting the limb on folded blankets so that it was very comfortable. The patient was then carried to White House, fifteen miles distant, by Lieutenant Eggleston and some men belonging to the quartermaster's department. He was left on his stretcher on the steam hospital transport on which he embarked at White House, and was not removed from it till put to bed at Armory Square Hospital, at Washington, four days after the receipt of the injury. Acting Assistant Surgeon Bannister had the immediate care of the case. The patient stated that the limb was placed in a box. Little extension was used, or counter extension. Three or four small pieces of bone were discharged within a short time. Another small piece has been cut out since from under the skin. An abscess was opened on the outer side of the thigh, the scar of which is conspicuous in the photograph. He left the hospital on crutches on the 22d of September, the wounds having closed within four or five weeks, and the bone united promptly. He was discharged from service on January 13, 1865. He used his crutches till the following April. The limb is shortened two and five-eighths inches, and the thigh cannot be fully flexed on the pelvis, but the limb is strong, sound and fully movable with the above exception, and wearing a boot slightly thickened in the sole, he limps but little. He has lately, March, 1870, walked six miles without difficulty, and is actively engaged in business. His photograph was prepared under the direction of Dr. Flandrau, of Rome, New York, who contributed it, with the foregoing memoranda, to the Army Medical Museum.

Photographed at the Army Medical Museum.

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Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 266. *United Gunshot Fracture of the Shaft of the Right Femur.*

John Buckley, 1st Lieutenant and Assistant Quartermaster, 140th New York Volunteers, while acting Aid-de-Camp at Spotsylvania Court House, May 8, 1864, had his right femur fractured in the middle third by a rifle ball. Surgeon T. M. Flandrau, 146th New York Volunteers, decided to attempt to save the limb, and, aided by Surgeon H. C. Dean, 140th New York Volunteers, dressed it in a Smith's anterior splint, suspended it from the bows of an army wagon. His servant steadying the foot, this officer was carried to Belle Plain, and thence up the Potomac by steamer. He reached the Seminary Hospital, Georgetown, D. C., May 17th, when the thigh was found shortened five inches. During the second, third, and fourth months after the fracture he was treated by an extension weight of sixteen pounds, a counter-extending band, and lateral sand bags. On August 20th, he had three profuse hæmorrhages, jeopardizing his life; but the bleeding was controlled by pressure. He left the hospital November 17th, on crutches, and five months after he laid these aside. He was discharged from service January 13, 1865. He has since been employed as a bookkeeper. The shortening amounts to two and a half inches, and the knee is somewhat stiffened. A fistulous opening still, March 16, 1870, exists on the back of the thigh which discharges a little. The limb is very useful and the limp not conspicuous. The photograph was taken under Dr. Flandrau's supervision, in March, 1870.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 267. *Excision of the Head of the Humerus.*

Private Benjamin E. Rice, Co. H, 7th Wisconsin Volunteers, was wounded at Gainesville on August 28, 1862, by a musket ball, which entered the right shoulder joint anteriorly. He was admitted to the regimental hospital; thence, on the 30th, he was sent to the Columbian Hospital at Washington, where, after a number of days, the head of the humerus was excised. He was discharged the service on December 22, 1862, and pensioned. On March 21, 1870, Doctor L. G. Armstrong enclosed the patient's picture and stated, that the wound had healed in six months; the joint was ankylosed, and the humerus shortened two inches; the forearm, only, could be used, which could not be raised laterally, and admitted of but little motion to and fro; and that there was very little neuralgic pain, and the patient's general health was good.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 268. *Excision of the Head of the Left Humerus and a Portion of the Glenoid Cavity of the Scapula.*

Private Jerome B. Mead, Co. K, 12th Wisconsin Volunteers, was wounded at Vicksburg, on June 23, 1863, by a musket ball, which struck beneath the left clavicle, and passed directly through the shoulder joint. He was admitted to the hospital of the Fourth Division, Seventeenth Corps, where the above mentioned operation was performed. On July 9th, he was conveyed, on the hospital transport "City of Memphis," to the Jefferson Barrack Hospital, Missouri, where he arrived on the 18th, and where he was discharged the service on August 21, 1863, and pensioned. On September 25, 1863, Pension Examiner J. H. Hyde reported that pieces of bone were occasionally discharged from the wound, and rated his disability total and permanent. On March 21, 1870, Doctor L. G. Armstrong enclosed a picture of the patient and stated that the wound had healed by granulation in fifteen months; the shoulder joint was firmly ankylosed, the arm being useful only from the elbow, and admitting of no motion but that which the scapula would permit by swinging to and fro; and that there was little neuralgic pain, and the patient enjoyed good health.

Printed at the Army Medical Museum.

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PHOTOGRAPH No. 269. *Successful Double Amputation at the Ankle, by Syme's Method, for Railway Accident.*

John Miller, a Scotchman, now residing at Gore's Landing, Ontario County, New York, had his feet crushed by a railway car, on February 25, 1859, at Edinburg. The metatarsals and anterior tarsal bones of both feet were comminuted. He was taken to the Royal Infirmary, and four hours after the accident, Mr. Lister, temporarily in charge of Mr. Syme's ward, amputated both feet at the ankle by Mr. Syme's method. The malleoli were sawn off on both sides. The muscles of the leg were much atrophied. The patient had walked on these stumps, their bases being extended by leathern bonnets, for nine years, balancing himself with two canes. His general condition was healthy. On December 25, 1869, Miller visited New York, and had a pair of artificial feet adapted by Dr. E. D. Hudson. He was then able to walk well without a cane, and the apparatus applied by this ingenious Surgeon gave so little inconvenience that Miller was reluctant to undress his limbs at night. In his report of the case, from which these notes are taken, Dr. Hudson, who has bestowed particular attention to the adaptation of prothetic apparatus after amputation at the ankle, remarks that "there can be no improvement upon a stump of a well performed Syme's amputation.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 270. *Successful Pirogoff Amputation for Compound Dislocation.*

Private Leonard S. Fitch, Co. K, 8th Michigan Cavalry, had his left ankle dislocated, and the left tarsus crushed by the fall of his horse, at Covington, Kentucky, about the end of May, 1863. He was sent to Hickman's Bridge Hospital, whence he was transferred, on October 12, 1863, according to the report of Assistant Surgeon A. C. Swartzwelder, to the Second Battalion of the Invalid Corps. On March 21, 1864, the patient was discharged and pensioned. On February 8, 1867, his foot was amputated by Pirogoff's method by Dr. Nash, assisted by Drs. Kenny and Jackson. On April 21, 1867, this pensioner was reported in good health, with a sound stump. He was furnished with an artificial limb by Dr. E. D. Hudson on January 6, 1870. Dr. Hudson had the negative prepared. He describes the stump as sound and useful, and the utility of the artificial limb gratifying and creditable.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 271. *Successful Intermediate Excision of the Head of the Femur for Gunshot Injury.*

In his work on Gunshot Wounds, published in Berlin in 1868, Dr. B. von Langenbeek describes a successful operation by Dr. Schönborn at Dresden, Saxony, giving the following particulars: Private Maxim Glutschack, aged twenty-four years, 8th Austrian Lancers, was wounded at the battle of Sadowa or Königgrätz, July 3, 1866, receiving a gunshot fracture of the head of the right femur. On August 23, 1866, the head of the femur was excised, a curved incision being made behind the great trochanter, the bone being sawn close below the trochanter minor. In May, 1867, the patient was entirely cured. The limb was shortened nine centimetres (three and a half inches), but the patient could walk very well. The head of the bone was shattered into fragments, and it is quite probable that the acetabulum was fissured. In December, 1869, Surgeon General Grimm of Prussia, sent to the U. S. Army Medical Museum a card picture of this man, who remained in good health, and with a comparatively useful limb. (See Card Photographs, A. M. M., Vol. IV, page 1.) The accompanying photograph is copied from the card picture.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 272. *A Case of Elephas in which the Result of an Operation was Fatal.*

This case occurred in the person of Mrs. J. G——, a widow, aged fifty years, a resident of Fall River, Massachusetts, and the mother of nine children. None of her ancestors, so far as she was aware, ever had any constitutional disease, and the longevity of her mother was so great as to be the subject of considerable notoriety. She had never been afflicted with varix or puerperal phlegmatia; the menstrual function was normal, and nothing unusual had occurred in her pregnancies except at her last two confinements, when considerable swelling of the left leg supervened, which subsided without treatment. About ten years previously she had an attack of insanity resulting from domestic troubles and the privations of poverty. Remaining in a lunatic asylum two years, she subsequently recovered her mental equilibrium, and was restored to her family. A few years later, after unusual muscular exertion in a damp cellar, she was attacked with erysipelas in the left foot, which inflammation subsided under treatment. Soon after, however, she observed the foot to be larger than its fellow. The limb gradually increased in bulk for more than six years, during which time she had undergone all kinds of treatment. Ligation of the main artery of the limb was proposed, but to this stout objection was made, the patient declaring that she and her family had decided upon amputation as the only alternative. After much reflection and consideration, the patient's feelings were acquiesced with. On January 27, 1870, after the usual preliminaries had been arranged, the thigh was amputated at the junction of middle and upper thirds by Dr. Isaac Smith. The circular integumental operation was the one chosen. Very little hæmorrhage occurred. The patient survived the operation but half an hour. The amputated limb weighed a trifle over one hundred pounds. At the time of operation the limb presented an unsightly huge mass of deformity, measuring at its greatest circumference three and a-half feet. The digits and foot had a glabrous and scaly appearance. Upon the integument of the anterior and inner aspect of the leg was a cuticular tubercular induration and ulceration with an amber-colored aqueous discharge. An account of a microscopical examination of portions of this limb by Dr. J. C. Warren, of Boston, Massachusetts, is published with Dr. Smith's report of the case, p. 119, Vol. LX, American Journal of Medical Sciences, for July, 1870.

Photographed at the Army Medical Museum.

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Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 273. *Anchylosis of the Right Hip from Traumatic Arthritis.*

Lieutenant Seth W. Clark, Co. C, 9th New York Cavalry, aged thirty-two years, was wounded in a cavalry engagement at Trevillian Station, Virginia, June 11, 1864, by a conoidal musket ball. The regimental surgeon, Dr. W. H. Rulison, reported the injury as a gunshot flesh wound of the right groin. The Lieutenant remained in the hands of the enemy, and was confined in Libby Prison until September 2, 1864, when he was exchanged and sent to the Officer's Hospital at Annapolis, where the injury is recorded on the hospital register as a "gunshot wound of the right hip." The patient states, however, that Surgeon B. A. Vanderkief, U. S. Vols., asserted that the neck of the femur was fractured, that there was three inches shortening, and further, that the case was exhibited to several surgeons as a remarkable instance of recovery after gunshot fracture of the upper extremity of the femur. The wound healed, and the patient was discharged from service on February 21, 1865. The patient further stated that an operation had been performed by Acting Assistant Surgeon Ely, for the removal of dead bone. My examination leads me to believe that the patient was wounded by a musket ball, which, passing from left to right, struck near the root of the penis, inflicting a superficial wound, not dividing the urethra, and then entered the right thigh an inch below the fold of the groin and lodged. I presume it passed below the neck of the femur in close proximity to the hip-joint, and that secondary traumatic arthritis ensued and resulted in false ankylosis. The shortening is apparent rather than real. From the anterior superior spinous process to the edge of the inner condyle of the femur is seventeen and a half inches on both sides; but the pelvis is so much inclined that an appearance of excessive shortening is produced. On the extensor of the thigh, below and a little in advance of the great trochanter, is a large cicatrix. This, the patient states, reopens from time to time, and freely discharges pus. The femur is very firmly ankylosed in an extended position, which makes it very inconvenient for the patient to sit. The right testis is atrophied. I could find no evidence of injury to the bone tissues, or testimony that any excision had been practiced.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 274. *Anterior View of a Necrosed Femur-stump.*

Private Julius Fabry, Battery K, 4th U. S. Artillery, had his left leg nearly carried away by a shrapnel shot at Deep Bottom, Virginia, August 16, 1864. After primary amputation at the place of election, and intermediate disarticulation at the knee, secondary amputation or rather resection of the projecting extremity of the femur, chronic osteomyelitis resulted in the death of the shaft of the bone. Fragments of the foliaceous mass of callus thrown out, and bits of necrosed bone frequently detached, gave rise to much suppuration. In 1867, Assistant Surgeon J. S. Billings, U. S. Army, perforated the involucrum with a trephine, and removed fragments of dead bone. On May 15, 1870, Assistant Surgeon George A. Otis, U. S. Army, reamputated at the hip successfully. The head and neck of the bone were not diseased. This pathological specimen is deposited in the Surgical Section of the Army Medical Museum. Other particulars of the case are recorded in the histories of photographs No. 275 and 276.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 275. *Stump of Left Femur, Exarticulated at the Hip for Necrosis.*

Private Julius Fabry, Battery K, 4th U. S. Artillery, aged thirty-eight years, had his left leg nearly carried away by a shrapnel shot, at Deep Bottom, Virginia, August 16, 1864. He was amputated below the knee on the field, and again amputated at the knee-joint, and subsequently at the lower third of the thigh, at Satterlee Hospital, Philadelphia. Chronic osteomyelitis followed, and all that remained of the shaft of the femur necrosed. An unusually large involucrum surrounded the dead bone. The thigh stump was the seat of constant abscesses, as exfoliations from time to time took place. On May 15, 1870, reamputation at the hip was performed by Assistant Surgeon George A. Otis, U. S. Army. The patient was about on crutches in twenty-one days. The Specimen is No. 5684, of the Surgical Section of the Army Medical Museum. An anterior view of the same specimen is given in photograph No. 274.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Bvt Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.
ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 276. *Appearances of Stump after a Successful Reamputation at the Hip.*

Private Julius Fabry, Battery K, 4th U. S. Artillery, aged thirty-eight, years, was wounded at Deep Bottom, Virginia, August 16, 1864. He was sitting on his horse, when a shrapnel shot shattered the lower part of his left leg. He was amputated, on the field, at the place of election, and then sent to hospital at Philadelphia. The stump turned out badly, and it was necessary to amputate again through the knee. The condyle protruded, and yet a third amputation, or rather a resection of the protruding bone, was found necessary. Nearly the whole of the shaft of the femur then necrosed. For six years the patient suffered from frequently recurring abscesses, as pieces of dead bone or foliaceous callus became detached. On May 15, 1870, reamputation at the hip was performed by Assistant Surgeon George A. Otis, U. S. Army. The patient recovered rapidly, being about on crutches in twenty-one days. On July 15, 1870, the patient, then a pensioner at the Soldier's Home, rode into Washington and visited the Army Medical Museum, and had this photograph taken. The stump had then healed. His general health was much improved. The pathological specimen of the old thigh stump is 5685, Section 1, A. M. M., and the diseased femur is specimen 5684.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Br't Lt. Col. and Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 277. *Gunshot Wound of the Knee Joint resulting in Recovery.*

Morris Huffman, a private of Co. H, 8th New Jersey Volunteers, aged twenty-seven years, was wounded at the battle of Williamsburg, Virginia, May 5, 1862, by a spherical musket ball which entered about one inch below and behind the left knee, directly in the median line of the limb, and passing upwards, forwards and inwards through the head of the tibia, lodged, as was surmised at the time, somewhere in the centre of the joint between the head of the tibia and internal condyle of femur, causing the limb to remain fixed at an angle of about 135 degrees. Being admitted to Hygeia Hospital at Fort Monroe, he was strongly advised by the surgeon in charge to submit to amputation of the thigh but stoutly objected, and was shortly after sent to his home in Asbury, Warren Co., New Jersey, on a furlough. Dr. Robert B. Browne, late Surgeon of Volunteers, writes under date of February 28, 1869, that he first saw and commenced the treatment of this case about June 1, 1862, at which time he searched carefully for the missile, but was unable to reach it. The patient had but little pain, was in good health, strong and robust. The wound suppurated finely, there was little or no inflammation of the joint, nor could any synovia be detected in the discharge. Emollient applications were made and the patient was allowed to move carefully about the house. The wound had healed about the middle of July and he was able to go about on crutches, but unable to extend the limb beyond the angle of 135 degrees. At the expiration of his furlough he returned to the hospital at Fort Monroe, whence he was discharged the service September 6, 1862. Dr. Browne states that he lost sight of his patient until the summer of 1863, when he had regained some mobility of the joint, and could, by giving the limb a peculiar twist, make apparent the position of the ball. On September 7, 1863, Dr. Edward Swift of Easton, Pa., having anesthetized the patient, Dr. Browne entered a narrow bladed bistoury immediately over the middle and inside of the joint, fortunately striking the ball in the centre about one inch below the integuments; the opening was then enlarged, and the ball extracted with the aid of forceps, the wound being quickly closed so as to admit as little air as possible. A small quantity of synovial fluid made its escape. The ball, five-eighths of an inch in diameter, was slightly battered. It appeared to have imbedded itself between the articular extremities of femur and tibia, and was fairly covered by the synovial sac. The limb was placed in a splint and perfect rest enjoined until all fear of inflammation of the joint had subsided. In one month the wound had healed by the first intention, and the patient was again able to get about with the aid of a crutch and cane, which he dispensed with at the end of five months. In July, 1868, he could walk with scarcely a limp; no deformity existed, with the exception of a slight bony prominence at the point from which the ball was extracted. The joint retained all its motions except that of extension which was limited, the leg assuming an angle of about 170 degrees when fully extended. He was in perfect health and free from all pain.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 278. *A Case of Intermediate Excision of the Knee Joint for Gunshot Injury.*

Alexander Rider, a private of Co. I, 76th Pennsylvania Volunteers, aged twenty-five years, was admitted into Hospital No. 1, Beaufort, South Carolina, October 24, 1862, having been wounded at Pocotaligo, South Carolina, October 22, 1862, by a rough lead canister ball, which entered over the external condyle of the right femur, and passing through the articulation lodged in the popliteal space. On October 24th, Surgeon R. B. Bontecou, U. S. V., removed the ball, and making an H-shaped incision, sawed off the lower portions of the condyles of the femur, and excised a very thin slice from the head of the tibia. The azygous artery was tied, and the transverse cut was accurately brought together by lead-wire sutures. The circulation and appearance of the limb were good, but there was some swelling of the knee joint, which was painful on pressure or when moved. At the date of operation the patient was in good health. An ice bag and lint wet in a solution of morphine were applied to the joint. On October 25th, a saline aperient was administered. The ice dressing was continued until November 2d. About this time there was troublesome diarrhœa which was checked by pills of opium and nitrate of silver. On October 27th, the limb was placed in a trough, stuffed with hay, which afforded much relief. Before this the pain had been excessive. By November 8th, the evidence of inflammation about the knee had disappeared. The transverse incision healed without suppuration. On December 1st, the bones had apparently united, and the incisions had healed except at a point on either side of the joint, from which a few drops of pus escaped on pressure. December 20th, a starch bandage was applied. December 26th, febrile disturbance with an erythematous blush over the skin of lower extremity occurring, the bandage was removed. On December 28th, the febrile symptoms had disappeared, and the patient was transferred North. He was seen by Dr. Bontecou at Fort Wood Hospital, New York Harbor, in July, 1863, at which time he was unable to walk, but subsequently did so with the aid of a cane. He was discharged from service in August, 1863, and pensioned. On March 6, 1867, Pension Examiner E. H. Pentz, reported him to have become paralyzed since the operation and to be helpless. He rates his disability permanent and equivalent to the loss of both limbs. A letter from the patient to Dr. Bontecou, dated July 29, 1870, reports his helpless and forlorn condition. Another letter from the same source, dated September 5, 1870, leads us to infer that his condition was not improved.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 279. *A Successful Secondary Excision of the Knee-Joint for Gunshot Injury.*

James Trail, private Co. I, 2d Kentucky Volunteers, aged thirty-two years, was wounded at Chickamauga, Georgia, September 19, 1863, by a conoidal ball, which entered externally just above the condyles of the right femur, and passing downwards through the knee-joint and upper end of the tibia, emerged on the inner and anterior aspect of the leg. He was treated at the field hospital, Huntsville, Alabama, thence was sent to Jefferson Hospital, Indiana, and on December 14, 1864, was admitted to the Main Street Hospital, Covington, Kentucky, whence he was discharged the service, the wound having healed. On October 5, 1866, he was admitted to the Good Samaritan Hospital, at Cincinnati, in an anæmic condition, but improved under iron and generous diet. Openings had formed, through which large quantities of pus and fragments of necrosed bone were discharged. The leg was somewhat atrophied, and the joint firmly ankylosed. On October 15th, some necrosed bone was removed through a crucial incision, and on November 20th, there was a large discharge of pus with fragments of necrosed bone. On December 14, 1866, Dr. George C. Blackman excised one inch and a-half of the head of the tibia through an H-shaped incision on the anterior aspect of the joint. The patella was also removed. The leg was firmly placed in a fracture box. Considerable hæmorrhage occurred shortly after the operation from no particular vessel. Cold applications were made. On the eighteenth day after the operation secondary hæmorrhage occurred, which was controlled by pressure. In ten weeks he was able to go about on crutches, and went to his home in Ironton, Ohio. His name does not appear on the records of the Pension Office.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 280. *Successful Excision of the Elbow-Joint for Gunshot Injury.*

J. T. Hertzog, a private of Co. K, 47th Pennsylvania Volunteers, a German of remarkably temperate habits, having never used stimulants, tobacco, tea nor coffee, and of excellent constitution, was wounded at the battle of Pocotaligo, October 22, 1862, by a ball which entered the right elbow joint at the outer and emerged just above the inner condyle of the humerus at the opposite side. He was admitted to Hospital No. 1, Beaufort, South Carolina, on October 24th. Two days subsequently the lower end of the humerus with the articulating ends of the ulna and radius were excised by Surgeon R. B. Bontecou, U. S. V., and the arm laid upon an angular splint of two parallel strips leaving an open space the whole extent, thus facilitating approach to the wound of exit. Morphine was applied to the wound; it was covered with cerate cloth, and bags of ice were directed to be kept applied. By November 1st, supuration was considerable, but the great tumefaction of the arm and forearm was much diminished. The lead-wire sutures were removed on November 15th, the wound having healed sufficiently to keep the parts in shape. On December 1st, the wound had nearly closed, there being but a slight discharge; the general condition of the patient was good, and he sat up to take his food. Some days previous to December 15th, the patient had been walking about the hospital grounds: the wound was nearly healed, and the elbow joint presented free mobility in every direction. On December 28th, he was transferred North, the wound being healed. The excised portions of bone with the history were presented to the Museum by the operator, and are numbered 2023 of the Surgical Section. This man was discharged the service February 24, 1863, and pensioned. On March 18, 1863, Pension Examiner Lewellyn Beaver reports "an open running sore." In June, 1864, Dr Bontecou writes that he saw his patient at Fort Wood, New York Harbor, in July, 1863, and that he had good motion of the elbow. Another report from Pension Examiner Beaver, dated September 11, 1866, states that this man had completely lost the use of his arm. There was four inches shortening. He rated his disability total.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 281. *A Successful Case of Excision of the Elbow-Joint, for Gunshot Injury.*

C. H. Lovell, Sergeant, Battery D, 14th New York Heavy Artillery, aged twenty-three years, was wounded at the battle of Cold Harbor, Virginia, June 2, 1864, by a conoidal ball which entered the right arm at the outer condyle of the humerus and emerged at the inner aspect of the arm nearly opposite, shattering the lower extremity of the bone. On June 3d, twenty-four hours after the reception of the injury, chloroform was administered and four inches of the distal extremity of the humerus was excised through a linear incision over the external condyle. The patient was in good condition at the time of operation. Simple dressings were applied. The wound healed and he was transferred to Philadelphia and admitted, on July 22, 1864, to the Mower Hospital, whence he was discharged the service September 6, 1864, and pensioned. On January 16, 1866, Dr. E. D. Hudson furnished this patient with a prosthetic apparatus, which in its incipency proved highly useful. At that time the arm was shortened nearly four inches and slightly atrophied. There was no use of the forearm but the functions of the hand were normal. On October 22, 1866, Pension Examiner J. B. Graves, who reports the patient to be suffering from caries of the lower end of the humerus with a continuous discharge and pain, rates his disability total and permanent. A communication from Dr. H. C. May, late Assistant Surgeon of Volunteers, dated March 18, 1868, states that this man has been employed for two years as a fireman in a factory at Corning, New York, and is able to do any work at arm's length like pitching wood, shoveling coal, etc.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 282. *Showing the Result of a Plastic Operation for the Relief of a Deformity caused by a Gunshot Wound of the Face.*

Elbert Hewitt, a private of Co. C, 6th Vermont Volunteers, aged twenty-one years, was admitted into the Frederick U. S. A. General Hospital on September 27, 1864, having previously been wounded at Winchester, Virginia, September 19, 1864, by a fragment of shell, which carried away a large portion of the superior and inferior maxillæ. The wound was treated with simple dressings. On November 19, 1864, he was transferred to New York City, and on the same date was admitted to St. Joseph's Hospital. On December 26, 1864, he was furlonged. Being readmitted to hospital, a plastic operation was performed by Dr. Gordon Buck on February 28, 1865. Previous to the operation the mouth could neither be freely opened nor entirely closed, and there was constant escape of saliva. A cast representing this condition is numbered 265 of the Surgical Section of the Army Medical Museum. Another showing the patient's appearance two months after the operation is numbered 485. The right half of the lower lip and the symmetry of the mouth are in a great measure restored. A third cast, taken January 8, 1866, prior to a second reparative operation, represents substantially the same condition. These casts were contributed by the operator. It will be seen from the photograph that the mouth is tolerably symmetrical as to the lips, but much drawn to the right side.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 283. *Recovery after a Severe Gunshot Wound of the Face and Ligation of the Left Common Carotid Artery.*

John F. Ames, a private of Co. G, 91st New York Volunteers, aged twenty-four years, was wounded at Gravelly Run, Virginia, March 31, 1865, by a conoidal ball which entered the left side of the face beneath the malar bone, passed across through both maxillary bones, and emerged below the centre of the left eye, destroying the eye, and fracturing the left nasal and superior maxillary bones. He was admitted to the Columbian Hospital, Washington, on April 4, 1865. Secondary hæmorrhage occurred on April 5th, from a branch of the internal maxillary artery, and on the 7th, Surgeon Thomas R. Crosby, U. S. V., ligated the left common carotid artery at its upper third. The patient was in good condition at the time of the operation. Simple dressings were applied; tonics, stimulants and nutritious diet were given. He was transferred to Carver Hospital, Washington, June 21st, and discharged the service July 3, 1865.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 284. *Successful Second Ligation of the Left Common Carotid for Secondary Hæmorrhage from the Temporal Artery, the result of Fracture of the Left Temporal Bone by a Conoidal Musket Ball.*

Private John Brooks, Co. I, 57th Pennsylvania Volunteers, aged seventeen years, was wounded at the battle of the Wilderness, May 6, 1864, by a conoidal musket ball, which entered over the left ear, passed forwards, making an irregular opening through the temporal bone large enough to admit the introduction of two fingers into the cavity of the skull, and escaped three inches anterior to the wound of entrance. The membranes of the brain, however, were not injured. He was treated in a field hospital, and, on May 15th, was sent to the Columbian Hospital at Washington. He was pale, emaciated, and complained of acute cephalalgia; otherwise, his bodily functions were normal. On the 17th, the headache had increased, and the pupils had become contracted. Expectant treatment was used, notwithstanding which, delirium gradually came on, and, on May 20th, the patient was comatose and unable to swallow. The pulsations of the heart were rapid and feeble; the pulse, at the wrist, imperceptible. He remained in this condition sixty hours, when, it was found, that if fluids were placed in his mouth in small quantities, he would swallow them. From this time he slowly improved. On June 2d, the patient was able to sit up; but, his bowels were constipated, he voided his urine unconsciously, and his mental faculties were much impaired. He was unable to articulate, had no recollection of the past or proper perception of present things, and stared vacantly around the tent. His appetite was ravenous. The pupil of the right eye did not respond to light; otherwise, there was no paralysis. At this date a hæmorrhage occurred from the posterior wound to the amount of about two ounces, followed by great improvement in all the symptoms. Hæmorrhage recurred every two or three days, and was not altogether checked until the 18th of June, as it seemed to aid much in restoring his mental faculties. On the latter date, an attempt was made to ligate the temporal artery; and this failing, the common carotid was ligated at its upper portion, on the 20th of June, by Surgeon T. R. Crosby, U. S. V. The bleeding still continuing, the posterior wound was enlarged, and some small fragments of exfoliated bone were removed; the wound was then plugged with lint, which entirely arrested the hæmorrhage. It was estimated that fifty ounces of blood had been lost during the last hæmorrhage. Liberal diet was prescribed, and the patient gained rapidly in flesh. The ligature came away on the tenth day after the operation, and the wound united, except at the point of ligation, where a fistulous opening remained, which discharged daily a small amount of pus. On August 15th, blood was found to ooze from the place of ligation; and, the patient having lost about twenty ounces, the artery was cut down upon by Surgeon Crosby, and ligated below the omohyoid muscle. The vessel was found dilated to more than double its normal size, and, firmly attached to it on the inner side, was a well-formed clot. Low diet was ordered; tincture of aconite was given to keep the heart's action as much reduced as was consistent with the safety of the patient. On September 15th, the wound had fully healed, and, on November 15th, the patient was furloughed, apparently entirely restored in his bodily functions. He was discharged from service on June 8, 1865. The case is reported by Surgeon T. R. Crosby, U. S. V.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

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Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 285. *Successful Removal of the Right Arm at the Shoulder-Joint, with Portions of the Clavicle and Scapula.*

Captain E. L. Severu, Co. K, 96th Pennsylvania Volunteers, a robust young man of temperate habits, was wounded at Spottsylvania Court House, Virginia, May 10, 1864, by the explosion of a case-shot, which comminuted the entire right humerus and involved the elbow-joint. A fragment of the missile had also passed through the top of the shoulder, carrying with it a considerable portion of the clavicle and superior part of the scapula. The unanimous conclusion of several medical officers being for immediate removal of the arm at the shoulder-joint with as much of the clavicle and scapula as were seriously involved, the patient was chloroformed, and Surgeon D. Webster Bland, U. S. V., removed the injured member at the shoulder joint, making a superior flap from the deltoid muscle, disarticulating the head of the bone, and cutting the lower flap from the inner side of the arm. Hemorrhage being arrested by ligatures, the wound over the clavicle was enlarged by an incision in the direction of the bone; the loose spicule were carefully removed, and either end of the clavicle sawn off, thus removing about four inches of this bone. The fragments of the superior part of the scapula with the loose and damaged integument were then removed; the wounds over the scapula and clavicle were closed with the interrupted suture, and a stimulant with an anodyne administered. The operation was performed in the midst of a dense wood at 5 o'clock, P. M., aided by the light of half a dozen candles. At midnight the patient, with hundreds of others seriously wounded, was sent to Fredericksburg, a distance of twenty miles over a corduroy-road. Sixty hours after the operation the wound was dressed, and the subject made as comfortable as circumstances would permit. Subsequent progress being favorable the patient was sent to Washington, and on May 25th was admitted to the Seminary Hospital, Georgetown, where he made a rapid and satisfactory recovery, and was furloughed July 1, 1864. Captain Severu was discharged the service August 17, 1864, and pensioned, his disability being rated total and permanent. On March 27, 1867, Dr. Bland writes from Pottsville, Pennsylvania, that his patient superintends a colliery, and enjoys excellent health.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 286. *A Successful Amputation at the Hip Joint for Scrofulous Degeneration of the Femur.*

The subject of this operation, Richard Eaton, a fisherman of temperate habits, aged thirty-seven years, was admitted to the Washington (D. C.) Infirmary on November 5, 1850, having been bedridden for many months from disease of the femur and knee joint. On admission there were as many as four deep sinuses extending down to the shaft of the bone, and opening by fungoid orifices on the thigh, which was throughout enormously enlarged and much inflamed. The knee joint was destroyed by ulceration to such an extent that the foot fell to either side; the discharge of pus from the sinuses was very great; and the parts presented a most disgusting aspect from the free generation of maggots in the limb and joint. The pulse was 106; there was anæmia, emaciation, and decubitis. Notwithstanding these symptoms, and the nightly administration of from three to six drachms of laudanum, the digestive organs were in a tolerably good condition. Under a generous diet and tonics, the patient's condition had slightly improved by November 14th, when it was decided to remove the thigh at the hip joint. After administering ether the artery was compressed by an assistant and Professor J. F. May removed the limb, making an anterior and a posterior flap. Very little blood was lost. Ligatures were applied in all to twelve arteries; the edges of the flap were approximated by four points of the twisted suture and adhesive strips; a water dressing was applied to the wound, and an anodyne administered. A longitudinal section of the femur immediately after removal showed its cancellous portion to be, throughout, a mass of disease; the cartilage about the enarthrodial articulation appeared normal; the soft parts were infiltrated with serum; and the muscles were pale and flabby, being blended together and disorganized in the lower half of the thigh. During the entire treatment of the case the patient took daily brown stout and iron, and animal food, while the stimulus of smoking was not withheld. Opiates were also freely administered. By January 1, 1851, the patient moved about the room on crutches, for the first time, and improving rapidly in flesh and strength, he left the Infirmary on January 26th. On July 18, 1851, Dr. May reported his patient to be actively employed in business, supporting by it a large family, and in all respects to present the appearance of a strong and healthy man.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

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PHOTOGRAPH No. 287. *The First Case of Hip-Joint Amputation in the United States.*

Louisa Adelaide Walters, a negro girl in her twelfth year, was operated on for *morbus coxarius* at the Moyamensing Alms-house in the year 1840. The operator, Dr. Washington Joseph Duffee, of Philadelphia, under date of January 28, 1868, communicates the following information relative to this case:—"As the first step of the operation I secured the femoral artery by ligation as it emerged from under Pouport's ligament, then made two lateral flaps, and after removing the limb at the joint, the flaps were united by the free use of the interrupted suture, and the usual dressings of the day applied. Only six arteries required ligation—about two fluid ounces of blood being lost during the operation, which occupied nine minutes and two seconds, including bandaging, etc. In six weeks she was discharged, well, and has so remained until the present time. The head of the femur was entirely absorbed, yet the acetabulum presented a surface entirely free from disease. The woman has since married, and is now the mother of two children, one a male, aged twelve years, the other a female, aged five years."

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,
Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH No. 288. *Showing a Gunshot Wound in which Fracture was limited to the Inner Table of the Skull.*

Private Denis S——, Co. E, 2d West Virginia Cavalry, was wounded in an engagement at Harper's Farm, near Appomattox Court House, on April 6, 1865, by the oblique impact of a musket ball which denuded and contused the frontal bone a little below the coronal suture and to the left of the median line. Being taken prisoner he was placed in a field hospital where a water dressing was applied, the hair being shaved off to a suitable extent. A few days subsequently, he was sent to the rear, and reaching Washington a fortnight after the reception of his wound, was placed in Harewood Hospital on April 19th. He had a chill soon after his admission and reported that for some days he had suffered from two paroxysms daily. He had no pain in the head nor any symptom to excite apprehension as to the condition of the brain except the chills which were ascribed to malarial influence. They proved, however, not to be amenable to quinia, which was freely administered, for several days, without advantage. On April 24th, a slight congestion of the lower lobe of the right lung was noticed. The next day pneumonia was fully developed here, and on the 26th, the greater portion of the right lung was involved, and there was acute pain in the cardiac region, with a scuffle accompanying the first sound of the heart and a murmur of regurgitation the second sound. The pulse rose rapidly to 156; but fluctuated greatly in frequency and force. At ten in the evening of this day the patient became comatose. Shortly afterwards Surgeon R. B. Bontecou, U. S. V., applied the crown of a small trephine on the right of the space in which the pericranium was removed. When the outer table was passed, pus began to exude from the cells of the diploë. When this was penetrated a depressed fracture of the inner table was discovered. Another perforation was now made to obtain space to remove the depressed fragments of the vitreous plate. A small fragment, and another measuring nine by six lines, was found completely detached. They were removed by common dissecting forceps. The operation had no influence upon the profound coma, that persisted until the patient's death, which took place on the following morning, April 26, 1864. At the autopsy a large abscess was found in the substance of the right cerebral hemisphere. The pathological specimen, consisting of a segment of the frontal bone, with the two disks and the larger fragment of the inner table removed at the operation, was contributed by the operator, and is numbered 4344, Section I, A. M. M.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 289. *A Case of Recovery after Excision of the Humerus for Gunshot Injury involving the Trachea, Clavicle and Shoulder Joint.*

James P. Kegerreis, a private of Battery B, 2d Pennsylvania Heavy Artillery, aged nineteen years, a robust healthy man, was wounded at the battle in front of Petersburg, Virginia, June 17, 1864, by a conoidal ball which entered three-fourths of an inch below the thyroid cartilage just to the left of the trachea, passed a little downwards and to the right under the jugular vein, carrying away one of the wings of the trachea, and emerging half an inch above the clavicle, three inches from point of entrance, was deflected in its course by hitting the butt of the musket, and again entered in front of the right clavicle two inches from the acromial end, passing through the surgical neck of the humerus, and emerging near the centre of the deltoid muscle. He was taken to the field hospital and marked for an amputation on the following day, but tearing off the label he crawled away among the "slightly wounded," and was sent to City Point where the wound was first dressed, three days after the reception, at which time it was found to be filled with vermin; several pieces of bone were extracted. Air passed through the wound in the trachea, and he spat up considerable blood: this wound, however, did well, and healed in about four weeks. In July, 1864, he was admitted to the Third Division Hospital, Alexandria, Virginia, where a number of spiculæ of bone were removed. On January 17, 1865, Surgeon Edwin Bentley, U. S. V., excised the head and three inches of the shaft of the right humerus through an incision five inches in length from acromion through the deltoid muscle. Several abscesses formed in the arm, and one on the side two inches below the axilla and on the posterior boundary of the space, all of which healed readily. He was discharged the service May 29, 1865, the wound of exit being still open. He states that about one year afterwards nine fistulous openings discharged, the arm from shoulder to elbow becoming greatly enlarged and his general health failing rapidly. On December 17, 1867, a sequestrum six inches long was removed by enlarging the orifice through which it pointed. The incision extended from the point of resection to the elbow, the patient being under the influence of nitrous oxide gas. No untoward symptoms occurred. The wounds were all healed on April 1, 1868, and never reopened. The elbow-joint is ankylosed in a semi-flexed position and firm ligamentous union has taken place in the arm, so that the subject is able to lift about 135 pounds with the injured limb. Eleven well marked cicatrices appear on the arm and side. The temperature of the limb is normal. In October, 1870, Mr. Kegerreis was employed as a clerk in the Pension Office and received a pension of \$15 a month. The excised head with a sequestrum of the shaft is numbered 5711, Section I, Army Medical Museum. The specimen and the particulars of the case were contributed by H. W. Sawtelle, M. D.

Photographed at the Army Medical Museum.

BY ORDER OF THE SURGEON GENERAL:

GEORGE A. OTIS,

Ass't Surg. U. S. A., Curator A. M. M.

Surgeon General's Office.

ARMY MEDICAL MUSEUM.

PHOTOGRAPH NO. 290. *Recovery after Amputation of the Thigh, Secondary Hæmorrhage, and Ligation of the Femoral Artery.*

Thomas Lenihan, a private of Co. D, 37th New York Volunteers, was wounded at the battle of Fair Oaks, Virginia, May 31, 1862. The right femur was fractured at the middle third, the fracture extending downward to the knee. He was taken prisoner, exchanged in four days and admitted to the Hygeia Hospital at Fort Monroe, where he remained until June 20, 1862, when he was transferred to Camden Street Hospital, Baltimore. On June 27th, Acting Assistant Surgeon George H. Dare amputated the right thigh at the upper third; secondary hæmorrhage set in on the night of the operation, and Assistant Surgeon Roberts Bartholow, U. S. A., ligated the femoral artery. The patient recovered and was discharged from service September 26, 1862. He was furnished with an artificial limb about eleven months after the amputation. On October 4, 1870, Mr. Lenihan called at the Army Medical Museum and stated that his stump had never bothered him. He was at that time on duty in the Interior Department.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 291. *A Dry Preparation of the Left Hand and Lower Portion of the Fore-arm, showing Incipient Necrosis of most of the Metacarpals and Phalanges*

The disease for which this member was amputated, it would seem, was involved in considerable obscurity, several distinguished surgeons having differed widely in their diagnoses. One considered it a disease of the blood vessels, another elephantiasis, whilst a third, from a microscopical examination, called it chronic cellulitis. The subject of the operation was Mary McFarland, a housekeeper, aged twenty-seven, who had an inflammation in the first phalanx of the little finger about January, 1868. Some six months later the disease invaded the metacarpal bone, and gradually extended during the year 1869. Becoming pregnant in September, she gave birth to a healthy child, which was carried the full term. Her appetite was insatiable. In March, 1870, she was examined by Doctors Parker and Hamilton and a number of others. In April, the hand becoming enlarged and painful, several punctures were made through the skin, one of which discharged daily from one to three pints of bloody serum. This discharge continued till the limb was amputated. When the punctures closed the hand would again become swollen and painful. In May a seton was introduced, but soon ulcerated, and the opening never healed. At no time was there any marked tenderness in working the joints. On August 10th the little finger was amputated. On the 15th it became necessary to remove the hand and a portion of the forearm. The pathological specimen was contributed to the Army Medical Museum by Dr. J. C. Snively, of Brooklyn, New York, and is numbered 5,705 of the Surgical Section. A microscopical examination of several sections of the soft parts of this specimen was made at the Army Medical Museum on August 25, 1870, and nothing new observed except the ordinary exudation products of inflammation. It was then directed that the specimen should be dissected and prepared in the dry way. A cheesy abscess was discovered under the palmar fascia, and periostitis of the metacarpals and phalanges with incipient necrosis. On January 10, 1871, Dr. Snively reported the amputation to have healed promptly, but that within the last month a redevelopment of the disease has occurred, implicating the several glands extending to the axilla.

Photographed at the Army Medical Museum.

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PHOTOGRAPHS NOS. 139, 178, 179 AND 292. *Partially Consolidated Gunshot Fracture of the Upper Third of the Right Femur.*

Private George Ruoss, Co. G, 7th New York Volunteers, aged twenty-seven years, was wounded in an engagement at the South Side Railroad, near Petersburg, Virginia, on March 31, 1865, by a conoidal musket ball, which struck the anterior and outer aspect of the right thigh, about three inches below the great trochanter, and, passing inwards and a little downwards, comminuted portions of the upper and middle thirds of the femur, and emerged posteriorly, about the middle of the gluteal fold. He was taken to the Base Hospital at City Point, and on April 6th, was transferred to Campbell Hospital at Washington. On July 8th, he was removed to Stanton Hospital, and, on September 12th, to Harewood Hospital. On his admission to Harewood, he was able to sit up, and the constitutional condition was tolerably good. The fracture had united with great deformity; there were several fistulous orifices, through which fragments of necrosed bone were extracted almost daily. On May 1, 1866, Ruoss was transferred, on the closure of Harewood, to the Post Hospital at Washington. On June 8th, he was etherized, and Assistant Surgeon W. Thompson, U. S. A., made a V shaped incision at the upper and outer part of the thigh, and removed several fragments of diseased bone. September 3, 1866: the wound has nearly healed; there are three sinuses, (two on the upper, and one on the lower surface,) which lead to what is evidently necrosed bone. December 31, 1866: Sinuses still open and discharging, general condition feeble; there is great deformity, and about five inches shortening of the limb, with almost complete ankylosis of the knee joint. The photograph was taken in July, 1867. A communication from Assistant Surgeon John Brooke, U. S. A., dated July 6, 1868, furnishes the following additional information:—On taking charge of the patient in November, 1867, he found the limb in the same condition as that previously described, except that a collection of pus, which had formed on the inner aspect of the thigh, just above the knee, had been opened, and that there was a sinus connecting with the seat of fracture. This sinus, with the openings above mentioned, continued until death. The patient was extremely feeble, greatly emaciated, and suffered much from diarrhoea and anorexia. These symptoms continued until the patient's death, which occurred June 27th, 1868. At the autopsy, the liver was found enormously enlarged, weighing ten pounds and ten ounces; and the right lung contained a small mass of calcareous matter. Portions of the tibia and fibula, and the femur with the os innominatum and patella attached, were removed. The femur, imperfectly united with great displacement and a deposit of foliaceous callus, shows that extensive periostitis had taken place. The upper portions of the tibia and fibula and the patella, also, show similar pathological changes. The specimen is No. 5450 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 293. *Proximal Extremity of the Left Femur with a Round Musket Ball, excised for Gunshot Injury.*

This photograph illustrates specimen 5658 of the Surgical Section of the Army Medical Museum, which was contributed with a fully detailed account by the operator, Assistant Surgeon F. Meacham, U. S. A. The subject of the operation was Hubert Erne, a private of Co. D, 4th United States Infantry, aged forty-eight years, and an old soldier of very intemperate habits, who had been wounded several times in the late war. The wound in question was inflicted, December 2, 1869, while acting as one of the corporal's guard escorting the mail wagon from Fort Laramie, Dakota, to Fort Fetterman. The nature of the injury to the bone is well explained by the photograph. Excision was performed through a curvilinear incision twenty-four hours after the reception of the wound. Very little blood was lost, and the patient rallied promptly after the operation, having suffered but little from the shock. The after treatment was conducted in accordance with the general principles common to all joint-excisions. By the end of March, 1870, the patient was convalescent, being able to sit up. On the 10th of April, he walked a short distance on crutches. There was a great disinclination on the part of the patient to exert himself. In July and August abscesses formed in the muscles of the thigh. March 9, 1871, the patient was reported to be entirely well, but persisted in lying abed. April 1, 1871, Dr. Meacham reported his patient to be able to walk comfortably on crutches, and to have slight control over the limb, which admitted of a to-and-fro motion with rotation inwards. The Doctor called at the Museum on June 2, 1871, and stated that his patient is not doing well, being troubled with dilatation of the heart, indigestion, irregular bowels, and hypochondriasis. By an order, dated A. G. O., June 9, 1871, it was provided that Private Erne should be sent to the Soldier's Home. A communication from Dr. Meacham, dated June 14, 1871, informs that this man is much better, and will soon be able to comply with the provisions of the above order.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 294. *Portions of Bones of the Buffalo transfixed by Indian Arrow Heads.*

The figure on the right of the group represents Specimen 4735 of the Surgical Section, which is a portion of rib, apparently a false rib of the right side, transfixed by an arrow head. Specimen 4736 of the Surgical Section, showing a portion of rib of the right side similarly transfixed, is represented by the figure on the left. Both specimens were presented to the Army Medical Museum June 8, 1867, by Professor Joseph Henry, of Washington, having been previously sent to the Smithsonian Institution from Nebraska Territory by Surgeon F. V. Hayden, U. S. V. The centre of the group represents a piece of the left scapula perforated by a Cheyenne arrow head. The specimen was found in the vicinity of Fort Sedgwick, Colorado Territory. The animal furnishing it was supposed to have perished some six or eight years previously. This specimen was contributed to the Army Medical Museum by Hospital Steward Richard Wall, U. S. A., and is numbered 4727 of the Surgical Section.

Photographed at the Army Medical Museum.

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PHOTOGRAPH No. 295.

The specimen illustrated by this photograph is numbered 5417 of the Surgical Section of the Army Medical Museum, and is from the Gibson Collection. It consists of the left innominatum and upper half of the femur, showing a firm ankylosis at the hip with immense osseous deposits and great spines of bone projecting from the trochanteric line and *linea aspera*.

Photographed at the Army Medical Museum.

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PHOTOGRAPH NO. 296. *A Gunshot Fracture of the Femur in the Middle Third terminating in Recovery.*

Hiram B. Smith, a private of the 9th Company of Ohio Sharpshooters, aged eighteen years, was admitted August 24, 1864, to Armory Square Hospital, Washington, having been wounded at the battle of Weldon Railroad, August 19, 1864, by a conoidal musket ball, which entered the internal surface of the left thigh, produced a comminuted fracture of the middle third of the femur, and emerged on the outer surface about two inches below the point of entrance. Simple dressings were applied. By November 24, 1864, the bone had united leaving an abscess on the outer side of the thigh extending from the seat of injury to the knee but not communicating with the joint. This abscess had been opened on November 20th, the discharge therefrom being profuse. The patient improved slowly until April 20, 1865, when he was transferred to Harper Hospital at Detroit, Michigan. From this hospital he was discharged the service, the wound not yet healed; and was subsequently pensioned. In March, 1867, Pension Examiner E. D. Peck reported this man to be still suffering from his wound, his leg being shortened six inches and useless. He rated his disability more than equal to the loss of limb and permanent. A communication from Dr. Geo. K. Smith, of Brooklyn, N. Y., dated March 18, 1871, states that several fragments of bone coming to the surface of the wound were removed by the patient himself. In October, 1866, he (the patient) removed a fragment three inches long by three-quarters of an inch wide. The last fragment was removed in 1868, the wound healing a few days afterwards. Since then he has been able to do most kinds of farm labor nearly as well as ever. On February 22, 1871, when this photograph was taken, Mr. Smith was in excellent health. There was five inches shortening of the limb, but he averred that it feels as strong as ever it did, and causes no inconvenience, except after a walk of four or five miles when the ankle inclines a little outward. The knee joint appears to be perfectly sound, but flexion at the knee is limited. The pelvis tilts to the left, the degree of obliquity being shown by the two spots on the anterior superior spinous processes of the ilia, which were painted there previous to taking the photograph.

Photographed at the Army Medical Museum.

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GEORGE A. OTIS,

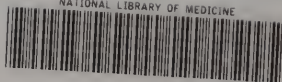
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